**Order No: MAC0010056C2**

## Room Air Conditioner

# CS-G95KE CU-G95KE / CS-G125KE CU-G125KE

Panasonic
INVERTER

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Panasonic

**⚠ PRECAUTION OF LOW TEMPERATURE**

In order to avoid frostbite, be assured of no refrigerant leakage during the installation or repairing of refrigeration circuit.

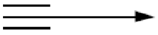
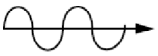
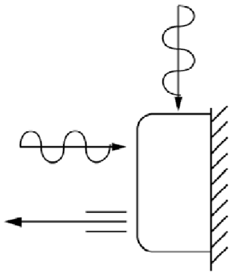
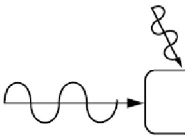
# 1. Features

- Product
- Powerful Mode for quick cool/heat
- Compressor operating frequency control to maintain desired room temperature
- Automatic Restart after power failure
- Washable front panel
- Power Monitor Display
- Standby Control
- High COP (new compressor and indoor heat exchanger)
- Vertical and Horizontal Airflow Auto Swing
- Auto change over of Automatic Operation mode
- Self illuminating Remote Control
- Catechin Air Purifying Filter / (To trap dust, tabacco smoke and tiny particles in the room; to prevent the growth of bacteria and viruses trapped in this filter)
- Deodorizing Filter
- Serviceability
- Self diagnosis

- **Forced Cooling and Heating operation at rated frequency**
- **Quality Improvement**
- **High power supply voltage protection**
- **Low power supply voltage protection**
- **Gas leakage detection**

## 2. Functions

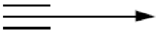
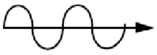
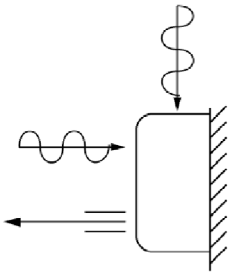
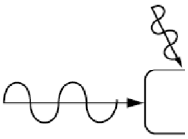
## 3. Product Specifications

| | Unit | CS-G95KE | CU-G95 |
|---|---|---|---|
| **Cooling Capacity** | **kW**<br>**kcal/h** | **2.6 (0.70 - 3.00)**<br>**2,240 (600 - 2,580)** | |
| **Heating Capacity** | **kW**<br>**kcal/h** | **3.6 (0.63 - 5.00)**<br>**3,100 (540 - 4,300)** | |
| **Moisture Removal** | **l/h**<br>**Pint/h** | **1.6**<br>**3.4** | |
| **Power Source** | **Phase**<br>**V**<br>**Cycle** | **Single**<br>**230**<br>**50** | |
| **Airflow Method** | **OUTLET** <br>**INTAKE**  | **SIDE VIEW**  | **TOP VI**  |
| | | | |

| | | | | |
|---|---|---|---|---|
| **Air Volume** | **Indoor Air (Lo)** | **m3/min (cfm)** | **Cooling; 7.0 (250)**<br>**Heating; 7.3 (260)** | **—** |
| | **Indoor Air (Me)** | **m3/min (cfm)** | **Cooling; 8.8 (310)**<br>**Heating; 8.8 (310)** | **—** |
| | **Indoor Air (Hi)** | **m3/min (cfm)** | **Cooling; 10.0 (350)**<br>**Heating; 10.0 (350)** | **—** |
| | **Outdoor Air** | **m3/min (cfm)** | **—** | **34.1 (12** |
| **Noise Level** | | **dB (A)** | **Cooling; High 38, Low 26**<br>**Heating; High 39, Low 30** | **Cooling**<br>**Heating** |
| | | **Power level dB** | **Cooling; High 51**<br>**Heating; High 52** | **Cooling; H**<br>**Heating; H** |
| **Electrical Data** | **Input** | **kW** | **Cooling; 0.73 (0.21 - 0.99)**<br>**Heating; 0.99 (0.20 - 1.40)** | |
| | **Running Current** | **A** | **Cooling; 3.75 (max. 6.76)**<br>**Heating; 4.80 (max. 6.76)** | |
| | **EER** | **W/W (kcal/hw)** | **Cooling; 3.56 (3.07)** | |
| | **COP** | **W/W (kcal/hw)** | **Heating; 3.64 (3.13)** | |
| | **Starting Current** | **A** | **4.80** | |
| **Piping Connection Port**<br>**(Flare piping)** | | **inch**<br>**inch** | **G ; Half Union 3/8”**<br>**L ; Half Union 1/4”** | **G ; 3-way va**<br>**L ; 2-way va** |
| **Pipe Size**<br>**(Flare piping)** | | **inch**<br>**inch** | **G (gas side) ; 3/8”**<br>**L (liquid side) ; 1/4”** | **G (gas side**<br>**L (liquid sid** |
| **Drain** | **Inner diameter** | **mm** | **12** | **—** |
| **Hose** | **Length** | **m** | **0.7** | **—** |
| **Power Cord Length**<br>**Number of core-wire** | | | **2.1 m**<br>**3 core wires × 1.0 mm2** | **—**<br>**—** |

| | | | | | |
|---|---|---|---|---|---|
| **Dimensions** | **Height** | | **inch (mm)** | **10 - 31/32 (279)** | **21 - 9/32** |
| | **Width** | | **inch (mm)** | **31 - 15/32 (799)** | **27 - 17/32** |
| | **Depth** | | **inch (mm)** | **7 - 27/32 (199)** | **11 - 7/32** |
| **Net Weight** | | | **lb (kg)** | **20 (9.0)** | **86 (3** |
| **Compressor** | | **Type** | | **—** | **Rotary (2 cy<br>rolling pist** |
| | **Motor** | **Type** | | **—** | **Induction (** |
| | **Rated** | **Output** | **W** | **—** | **500** |
| **Air Circulation** | | **Type** | | **Cross-flow Fan** | **Propeller** |
| | | **Material** | | **AS + Glass Fiber 30%** | **P.P + (Mica<br>Fiber) 3** |
| | **Motor** | **Type** | | **Transistor (4-poles)** | **Induction (** |
| | | **Input** | **W** | **—** | **64** |
| | | **Rate Output** | **W** | **20** | **20** |
| | **Fan Speed** | **Lo (Cool/ Heat)** | **rpm** | **980 / 1,010** | **—** |
| | | **Me (Cool/ Heat)** | **rpm** | **1,160 / 1,220** | **—** |
| | | **Hi (Cool/ Heat)** | **rpm** | **1,280 / 1,380** | **760** |
| **Heat Exchanger** | **Description** | | | **Evaporator** | **Conden** |
| | **Tube material** | | | **Copper** | **Copp** |
| | **Fin material** | | | **Aluminium** | **Alumini** |
| | **Fin Type** | | | **Slit Fin** | **Corrugate** |
| | **Row / Stage** | | | **(Plate fin configuration, forced dr** | |
| | | | | **2 / 14** | **1 / 2** |
| | **FPI** | | | **21** | **19** |
| | **Size (W × H × L)** | | **mm** | **614 × 294 × 25.4** | **782.9 × 50** |
| **Refrigerant Control Device** | | | | **—** | **Capillary** |
| **Refrigeration Oil** | | | **(c.c)** | **—** | **SUNISO 4G<br>ATMOS M6** |
| **Refrigerant (R-22)** | | | **g (oz)** | **—** | **780 (27** |
| **Thermostat** | | | | **Electronic Control** | **—** |
| **Protection Device** | | | | **Electronic Control** | **Electronic** |
| **Capillary Tube** | **Length** | | **mm** | **—** | **C1, C2 ; 1033** |
| | **Flow Rate** | | **l/min** | **—** | **C1, C2 ; 4.8,** |
| | **Inner Diameter** | | **mm** | **—** | **C1, C2 ; 1.2,** |
| **Air Filter** | **Material** | | | **P.P.** | **—** |
| | **Style** | | | **Honeycomb** | |
| **Fan Motor Capacitor** | | | **μ F, VAC** | **—** | **2.0 μ F, 4** |

**- Specifications are subject to change without notice for further improvement.**

|  |  | Unit | CS-G125KE | CU-G12 |
|---|---|---|---|---|
| **Cooling Capacity** |  | kW<br>kcal/h | 3.45 (0.74 - 4.00)<br>2,970 (640 - 3,440) |  |
| **Heating Capacity** |  | kW<br>kcal/h | 4.80 (0.70 - 6.50)<br>4,130 (600 - 5,590) |  |
| **Moisture Removal** |  | l/h<br>Pint/h | 2.0<br>4.2 |  |
| **Power Source** |  | Phase<br>V<br>Cycle | Single<br>230<br>50 |  |
| **Airflow Method** |  | OUTLET  INTAKE  | SIDE VIEW  | TOP VI  |
| **Air Volume** | Indoor Air (Lo) | $m^3/min$<br>(cfm) | Cooling; 9.0 (320)<br>Heating; 9.1 (320) | — |
|  | Indoor Air (Me) | $m^3/min$<br>(cfm) | Cooling; 10.4 (370)<br>Heating; 10.3 (360) | — |
|  | Indoor Air (Hi) | $m^3/min$<br>(cfm) | Cooling; 11.2 (400)<br>Heating; 11.2 (400) | — |
|  | Outdoor Air | $m^3/min$<br>(cfm) | — | 31.5 (11 |
|  |  |  |  |  |

| | | | | |
|---|---|---|---|---|
| **Noise Level** | | **dB (A)** | **Cooling; High 41, Low 29**<br>**Heating; High 41, Low 35** | **Cooling**<br>**Heating** |
| | | **Power level dB** | **Cooling; High 54**<br>**Heating; High 54** | **Cooling; H**<br>**Heating; H** |
| **Electrical Data** | **Input** | **kW** | **Cooling; 1.05 (0.22 - 1.33)**<br>**Heating; 1.41 (0.22 - 2.00)** | |
| | **Running Current** | **A** | **Cooling; 5.00 (max. 8.96)**<br>**Heating; 6.30 (max. 8.96)** | |
| | **EER** | **W/W (kcal/ hw)** | **Cooling; 3.29 (2.83)** | |
| | **COP** | **W/W (kcal/ hw)** | **Heating; 3.40 (2.93)** | |
| | **Starting Current** | **A** | **6.3** | |
| **Piping Connection Port**<br>**(Flare piping)** | | **inch**<br>**inch** | **G ; Half Union 1/2”**<br>**L ; Half Union 1/4”** | **G ; 3-way va**<br>**L ; 2-way va** |
| **Pipe Size**<br>**(Flare piping)** | | **inch**<br>**inch** | **G (gas side) ; 1/2”**<br>**L (liquid side) ; 1/4”** | **G (gas side**<br>**L (liquid sid** |
| **Drain Hose** | **Inner diameter** | **mm** | **12** | **—** |
| | **Length** | **m** | **0.7** | **—** |
| **Power Cord Length**<br>**Number of core-wire** | | | **2.1 m**<br>**3 core wires × 1.5 $mm^2$** | **—**<br>**—** |
| **Dimensions** | **Height** | **inch (mm)** | **10 - 31/32 (279)** | **21 - 9/32** |
| | **Width** | **inch (mm)** | **31 - 15/32 (799)** | **27 - 17/32** |
| | **Depth** | **inch (mm)** | **7 - 27/32 (199)** | **11 - 7/32** |
| **Net Weight** | | **lb (kg)** | **20 (9.0)** | **95 (43.** |
| **Compressor** | **Type** | | **—** | **Rotary (2 cy**<br>**rolling pist** |
| | **Motor Type** | | **—** | **Induction (4** |
| | **Rated Output** | **W** | **—** | **500** |

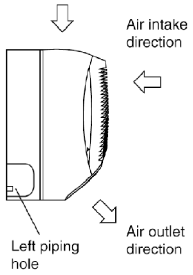
| | | | | | |
|---|---|---|---|---|---|
| **Air Circulation** | | **Type** | | **Cross-flow Fan** | **Propeller** |
| | | **Material** | | **AS + Glass Fiber 30%** | **P.P + (Mica<br>Fiber) 3** |
| | **Motor** | **Type** | | **Transistor (4-poles)** | **Induction (** |
| | | **Input** | **W** | **—** | **67** |
| | | **Rate Output** | **W** | **20** | **25** |
| | **Fan Speed** | **Lo (Cool/ Heat)** | **rpm** | **1,170 / 1,200** | **—** |
| | | **Me (Cool/ Heat)** | **rpm** | **1,320 / 1,360** | **—** |
| | | **Hi (Cool/ Heat)** | **rpm** | **1,410 / 1,480** | **790** |
| **Heat Exchanger** | **Description** | | | **Evaporator** | **Conden** |
| | **Tube material** | | | **Copper** | **Copp** |
| | **Fin material** | | | **Aluminium** | **Alumini** |
| | **Fin Type** | | | **Slit Fin** | **Corrugate** |
| | **Row / Stage** | | | **(Plate fin configuration, forced dr** | |
| | | | | **2 / 14** | **2 / 2** |
| | **FPI** | | | **21** | **16** |
| | **Size (W × H × L)** | | **mm** | **614 × 294 × 25.4** | **693.5 × 50** |
| **Refrigerant Control Device** | | | | **—** | **Capillary** |
| **Refrigeration Oil** | | | **(c.c)** | **—** | **SUNISO 4G<br>ATMOS M6** |
| **Refrigerant (R-22)** | | | **g (oz)** | **—** | **1,070 (3** |
| **Thermostat** | | | | **Electronic Control** | **—** |
| **Protection Device** | | | | **Electronic Control** | **Electronic** |
| **Capillary Tube** | **Length** | | **mm** | **—** | **C1, C2 ; 720,** |
| | **Flow Rate** | | **l/min** | **—** | **C1, C2 ; 7.2,** |
| | **Inner Diameter** | | **mm** | **—** | **C1, C2 ; 1.3,** |
| **Air Filter** | **Material** | | | **P.P.** | **—** |
| | **Style** | | | **Honeycomb** | |
| **Fan Motor Capacitor** | | | **μ F, VAC** | **—** | **2.0 μ F, 4** |

**- Specifications are subject to change without notice for further improvement.**

# 4. Dimensions

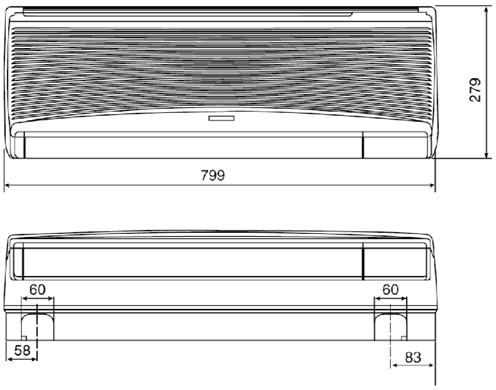
## CS-G95KE / CS-G125KE

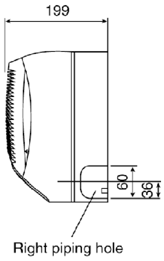
Unit : mm


Air intake direction
Left piping hole
Air outlet direction

<Side View>

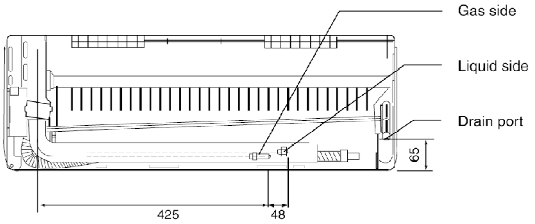
<Front View>


279
799
60
60
58
83

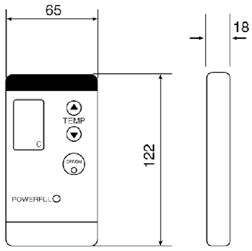

199
60
36
Right piping hole

<Side View>

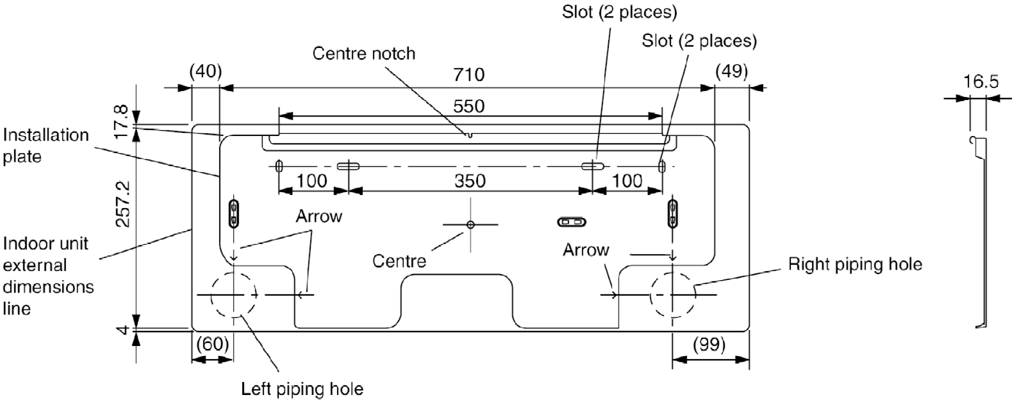
<BackView>


Gas side
Liquid side
Drain port
65
425
48

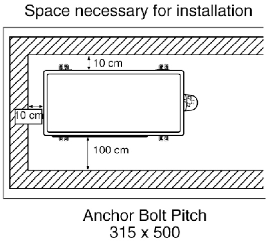
Remote control transmitter

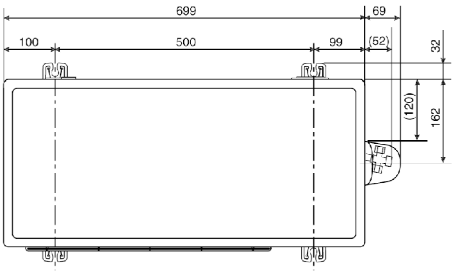

65
18
122
TEMP
POWERFUL

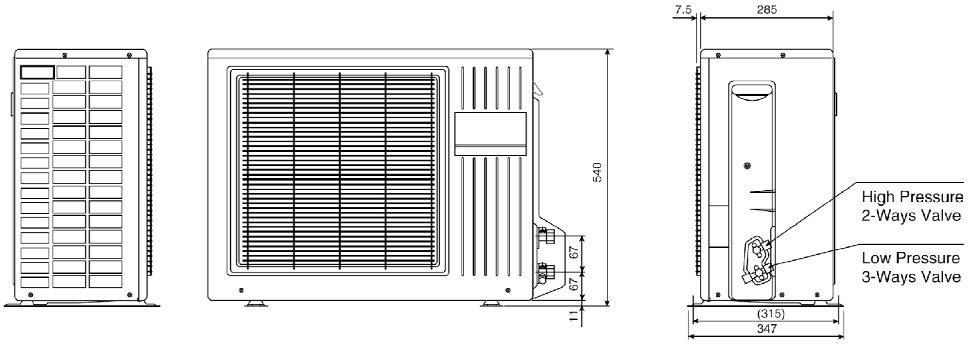
Relative position between the indoor unit and the installation plate <Front View>


Slot (2 places)
Slot (2 places)
Centre notch
(40)
710
(49)
16.5
550
17.8
Installation plate
100
350
100
257.2
Arrow
Arrow
Centre
Indoor unit external dimensions line
Right piping hole
4
(60)
(99)
Left piping hole

**CU-G95KE / CU-G125KE**

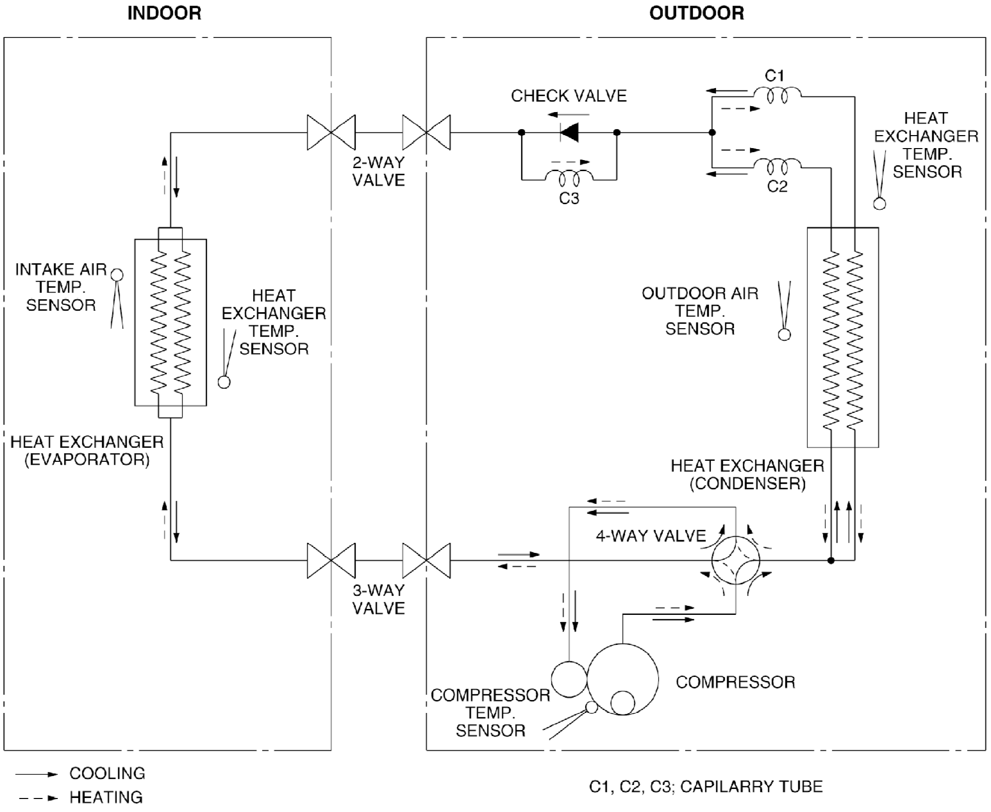

Space necessary for installation
10 cm
10 cm
100 cm
Anchor Bolt Pitch
315 x 500


699
69
100
500
99
(52)
32
(120)
162


7.5
285
540
67
67
11
High Pressure
2-Ways Valve
Low Pressure
3-Ways Valve
(315)
347

# 5. Refrigeration Cycle Diagram

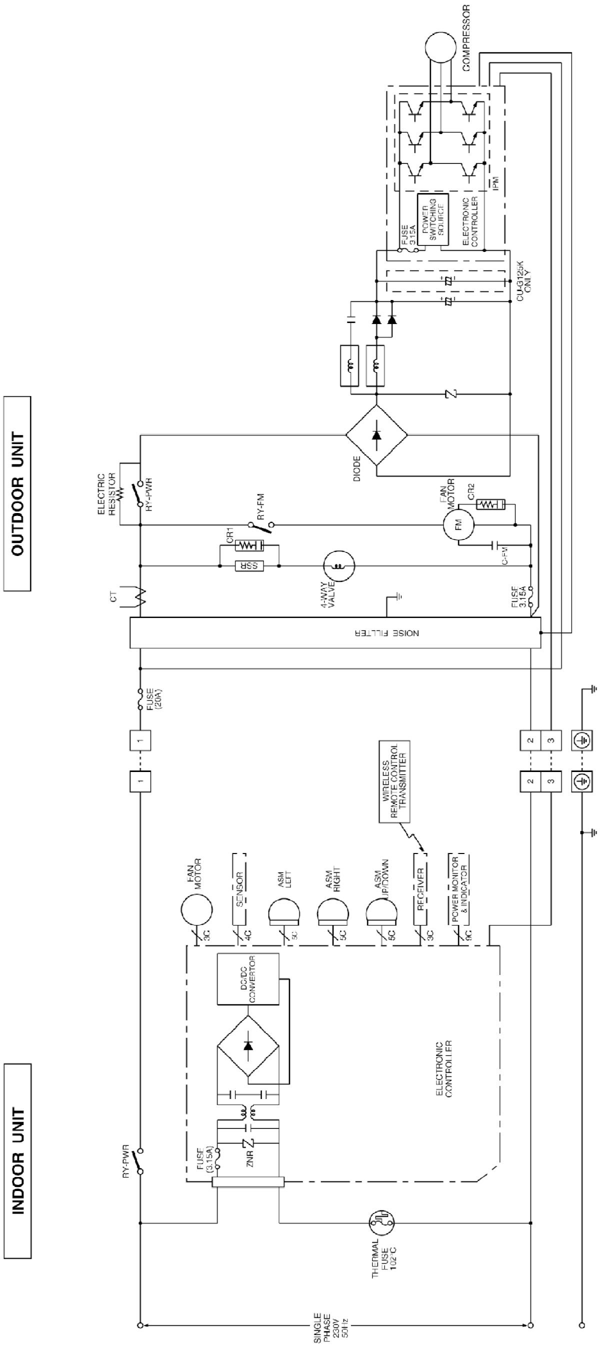
**CS-G95KE / CU-G95KE**
**CS-G125KE / CU-G125KE**


INDOOR
OUTDOOR
CHECK VALVE
C1
C2
C3
HEAT EXCHANGER TEMP. SENSOR
2-WAY VALVE
INTAKE AIR TEMP. SENSOR
HEAT EXCHANGER TEMP. SENSOR
OUTDOOR AIR TEMP. SENSOR
HEAT EXCHANGER (EVAPORATOR)
HEAT EXCHANGER (CONDENSER)
4-WAY VALVE
3-WAY VALVE
COMPRESSOR
COMPRESSOR TEMP. SENSOR
COOLING
HEATING
C1, C2, C3; CAPILARRY TUBE

# 6. Block Diagram

# 7. Wiring Diagram

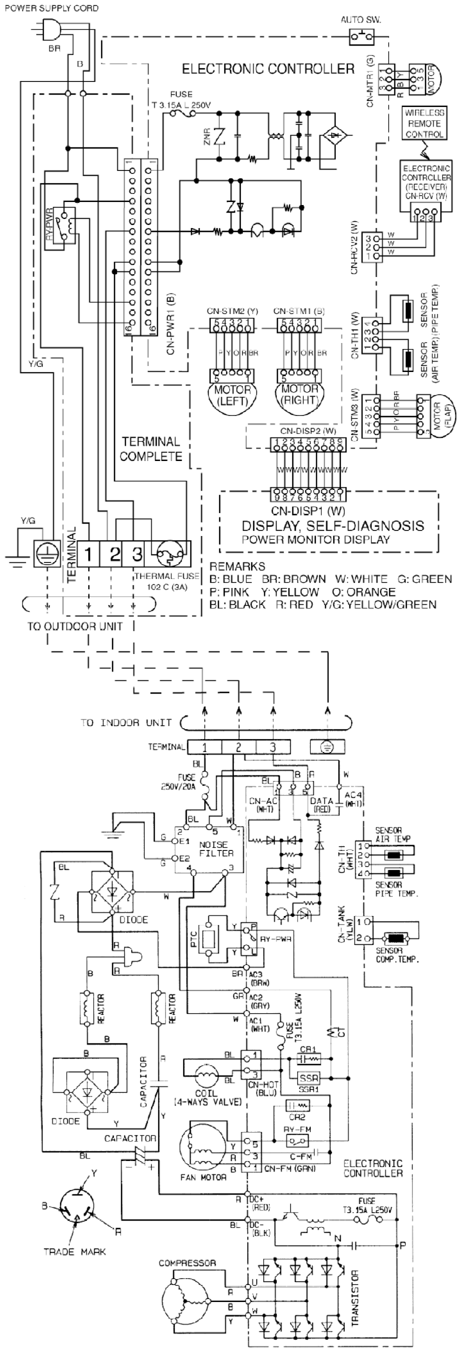
## CS-G95KE / CU-G95KE
## CS-G125KE / CU-G125KE


OUTDOOR UNIT
INDOOR UNIT
COMPRESSOR
IPM
FUSE 3.15A
POWER SWITCHING SOURCE
ELECTRONIC CONTROLLER
CU-G125K ONLY
DIODE
ELECTRIC RESISTOR
RY-PWR
RY-FM
CR1
SSR
4-WAY VALVE
FAN MOTOR
FM
CR2
C-FM
CT
FUSE 3.15A
NOISE FILTER
FUSE (20A)
1
2
3
WIRELESS REMOTE CONTROL TRANSMITTER
FAN MOTOR
SENSOR
ASM LEFT
ASM RIGHT
ASM UP/DOWN
RECEIVER
POWER MONITOR & INDICATOR
3C
4C
5C
5C
5C
3C
9C
DC/DC CONVERTOR
ELECTRONIC CONTROLLER
FUSE (3.15A)
ZNR
RY-PWR
THERMAL FUSE 102°C
SINGLE PHASE 230V 50Hz

※ ⌐ ┐ Indicates the electronic control unit.

※ "C" Indicates the number of core wires. (Example: 5C=5 core wires)

## CS-G95KE / CU-G95KE


POWER SUPPLY CORD
AUTO SW.
ELECTRONIC CONTROLLER
FUSE T 3.15A L 250V
ZNR
CN-MTR1 (G)
MOTOR
WIRELESS REMOTE CONTROL
ELECTRONIC CONTROLLER (RECEIVER) CN-RCV (W)
CN-RCV2 (W)
RY-PWR
CN-PWR1 (B)
CN-STM2 (Y)
CN-STM1 (G)
MOTOR (LEFT)
MOTOR (RIGHT)
CN-TH1 (W)
SENSOR (PIPE TEMP.)
SENSOR (AIR TEMP.)
CN-STM3 (W)
MOTOR (FLAP)
CN-DISP2 (W)
CN-DISP1 (W)
DISPLAY, SELF-DIAGNOSIS
POWER MONITOR DISPLAY
TERMINAL COMPLETE
TERMINAL
THERMAL FUSE 102 C (3A)
REMARKS
B: BLUE BR: BROWN W: WHITE G: GREEN
P: PINK Y: YELLOW O: ORANGE
BL: BLACK R: RED Y/G: YELLOW/GREEN
TO OUTDOOR UNIT
TO INDOOR UNIT
TERMINAL
FUSE 250V/20A
CN-AC (WHT)
DATA (RED)
AC4 (WHT)
NOISE FILTER
SENSOR AIR TEMP.
CN-TH (WHT)
SENSOR PIPE TEMP.
CN-TANK (YLW)
SENSOR COMP. TEMP.
DIODE
PTC
RY-PWR
AC3 (BRW)
AC2 (GRY)
AC1 (WHT)
FUSE T3.15A L250V
CT
REACTOR
REACTOR
CAPACITOR
CR1
SSR
SSR1
COIL (4-WAYS VALVE)
CN-HOT (BLU)
CR2
RY-FM
C-FM
DIODE
CAPACITOR
FAN MOTOR
CN-FM (GRN)
ELECTRONIC CONTROLLER
TRADE MARK
DC+ (RED)
DC- (BLK)
FUSE T3.15A L250V
COMPRESSOR
TRANSISTOR

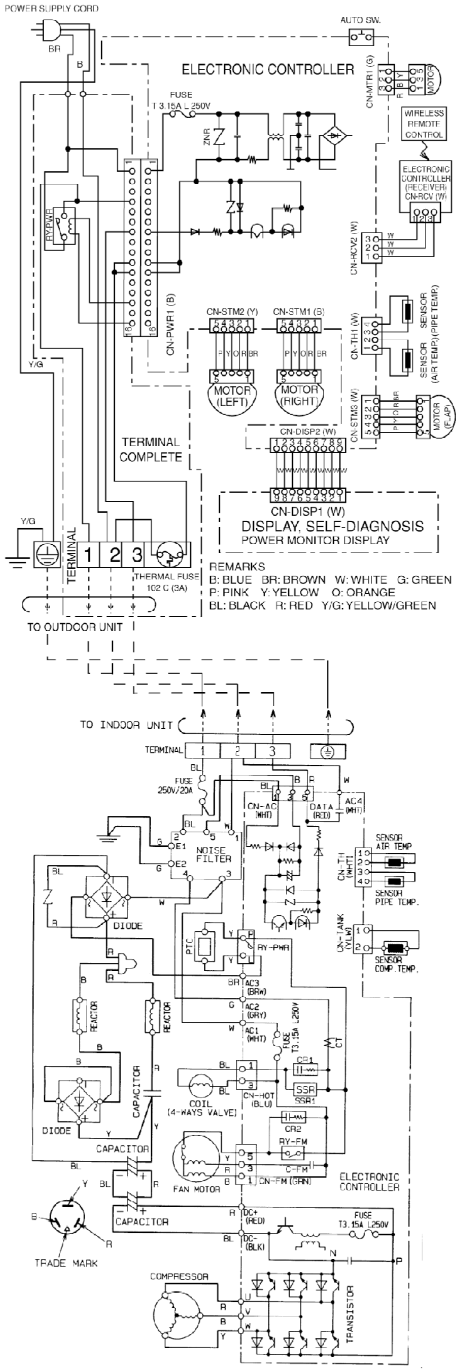
## Resistance of Outdoor Fan Motor Windings

| CONNECTION | CWA95384 ( Ω ) |
|---|---|
| BLUE - YELLOW | 264.1 |
| YELLOW - RED | 304.8 |

## Resistance of Compressor Windings

| CONNECTION | 2RD132X5BB03 ( Ω ) |
|---|---|
| U - V | 0.8 |
| U - W | 0.8 |
| V - W | 0.8 |

## CS-G125KE / CU-G125KE


POWER SUPPLY CORD
AUTO SW.
ELECTRONIC CONTROLLER
FUSE
T 3.15A L 250V
ZNR
CN-MTR1 (G)
MOTOR
WIRELESS REMOTE CONTROL
ELECTRONIC CONTROLLER (RECEIVER) CN-RCV (W)
CN-RCV2 (W)
RY-PWR
CN-PWR1 (B)
CN-STM2 (Y)
CN-STM1 (B)
MOTOR (LEFT)
MOTOR (RIGHT)
CN-TH1 (W)
SENSOR (AIR TEMP.)
SENSOR (PIPE TEMP.)
CN-STM3 (W)
MOTOR (FLAP)
CN-DISP2 (W)
CN-DISP1 (W)
TERMINAL COMPLETE
DISPLAY, SELF-DIAGNOSIS
POWER MONITOR DISPLAY
Y/G
TERMINAL
1 2 3
THERMAL FUSE 102 C (3A)
REMARKS
B: BLUE BR: BROWN W: WHITE G: GREEN
P: PINK Y: YELLOW O: ORANGE
BL: BLACK R: RED Y/G: YELLOW/GREEN
TO OUTDOOR UNIT
TO INDOOR UNIT
TERMINAL
FUSE 250V/20A
CN-AC (WHT)
DATA (RED)
AC4 (WHT)
NOISE FILTER
E1
E2
SENSOR AIR TEMP
CN-TH (WHT)
SENSOR PIPE TEMP.
CN-TANK (YLW)
SENSOR COMP. TEMP.
DIODE
PTC
RY-PWR
AC3 (BRW)
AC2 (GRY)
AC1 (WHT)
FUSE T3.15A L250V
CT
REACTOR
REACTOR
CAPACITOR
CR1
SSR
SSR1
COIL (4-WAYS VALVE)
CN-HOT (BLU)
CR2
RY-FM
C-FM
DIODE
CAPACITOR
FAN MOTOR
CN-FM (GRN)
ELECTRONIC CONTROLLER
TRADE MARK
CAPACITOR
DC+ (RED)
DC- (BLK)
FUSE T3.15A L250V
N
P
COMPRESSOR
U
V
W
TRANSISTOR

## Resistance of Outdoor Fan Motor Windings

| CONNECTION | CWA95380 ( Ω ) |
|---|---|
| BLUE - YELLOW | 234.1 |
| YELLOW - RED | 263.5 |

**Resistance of Compressor Windings**

| CONNECTION | 2RD132X5BA03 ( Ω ) |
|---|---|
| U - V | 0.8 |
| U - W | 0.8 |
| V - W | 0.8 |

# 8. Operation Details

## 8.1. Function

1. **Temperature Shift**

**Once the operation stars, the remote control setting temperature will be shifted internally based on the setting fan speed and outdoor air temperature. In addition, if Sleep Mode or Powerful Mode are set, the temperature shift will be carried out.**

**Setting of Internal Setting Temperature**

**The internal setting temperature can be decided as follows:**

Remote control setting temperature

+

Outdoor temperature shift (refer Table a)

+

Fan speed shift (+ 1.0°C)

+

Any Sleep Mode shift operation?

+

Any Powerful Operation shift? (refer Table b)

+

[Check upper/lower (33°C/16°C) limit for setting temperature]

↓

**INTERNAL SETTING TEMPERATURE**

**Table a**

**Setting Temperature Shift based on outdoor air temperature.**

**(i) Cooling, Soft Dry**

| | Shift amount | |
|---|---|---|
| | CS-G95KE | CS-G125KE |
| 38°C≦Outdoor air temperature | -1.0°C | -1.0°C |
| 30°C≦Outdoor air temperature < 38°C | -0.5°C | -1.0°C |
| 23°C≦Outdoor air temperature < 30°C | 0.0°C | 0.0°C |
| Outdoor air temperature < 23°C | +1.0°C | +1.0°C |

**(i) Heating**

| | Shift amount |
|---|---|
| 21°C≦Outdoor air temperature | -1.5°C |
| 17°C≦ Outdoor air temperature < 21°C | -1.0°C |
| 13°C≦Outdoor air temperature < 17°C | -1.0°C |
| 9°C≦Outdoor air temperature < 13°C | 0.0°C |
| 5°C≦Outdoor air temperature < 9°C | +0.5°C |
| 1° ≦Outdoor air temperature < 5°C | +1.0°C |
| -3°C≦Outdoor air temperature < 1°C | +1.0°C |
| Outdoor air temperature < -3°C | +1.5°C |

**Table b**

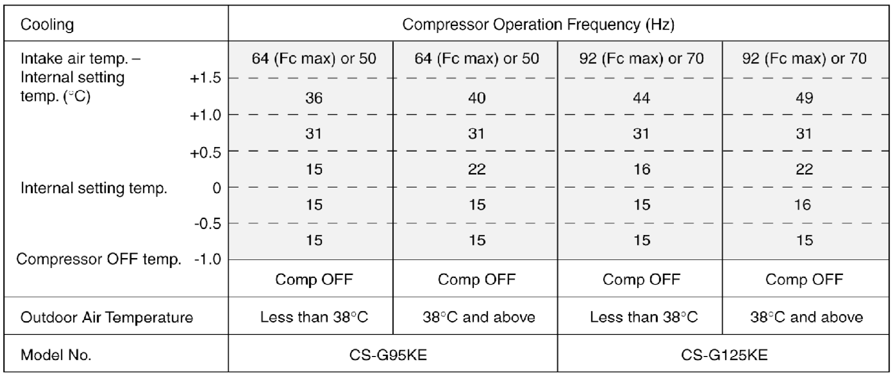
**Powerful Mode Shift.**

| | Cooling | Dry | Heating |
|---|---|---|---|
| Powerful | -4.0°C | -3.0°C | +6.0°C |

## 2. Cooling Operation

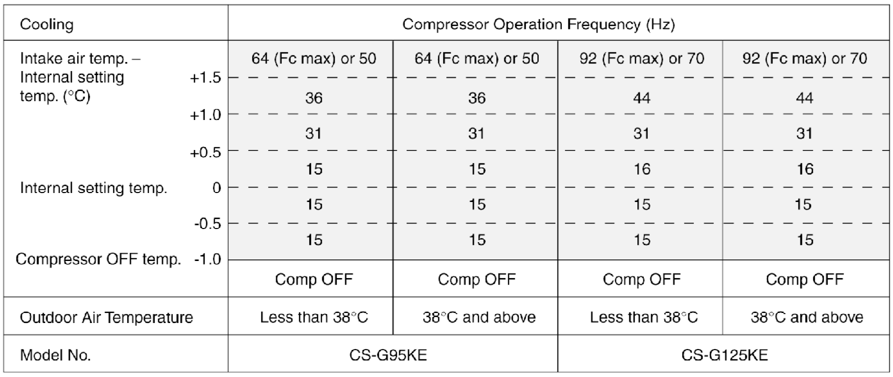
### A. Room Temperature Control

**(i) When the remote control setting temperature is less than 24°C**



| Cooling | Compressor Operation Frequency (Hz) | | | |
|---|---|---|---|---|
| Intake air temp. – Internal setting temp. (°C) | 64 (Fc max) or 50 | 64 (Fc max) or 50 | 92 (Fc max) or 70 | 92 (Fc max) or 70 |
| +1.5 | | | | |
| | 36 | 40 | 44 | 49 |
| +1.0 | | | | |
| | 31 | 31 | 31 | 31 |
| +0.5 | | | | |
| | 15 | 22 | 16 | 22 |
| Internal setting temp. 0 | | | | |
| | 15 | 15 | 15 | 16 |
| -0.5 | | | | |
| | 15 | 15 | 15 | 15 |
| Compressor OFF temp. -1.0 | | | | |
| | Comp OFF | Comp OFF | Comp OFF | Comp OFF |
| Outdoor Air Temperature | Less than 38°C | 38°C and above | Less than 38°C | 38°C and above |
| Model No. | CS-G95KE | | CS-G125KE | |

**(ii) When the remote control setting temperature is 24°C and above**



| Cooling | Compressor Operation Frequency (Hz) | | | |
|---|---|---|---|---|
| Intake air temp. – Internal setting temp. (°C) | 64 (Fc max) or 50 | 64 (Fc max) or 50 | 92 (Fc max) or 70 | 92 (Fc max) or 70 |
| +1.5 | | | | |
| | 36 | 36 | 44 | 44 |
| +1.0 | | | | |
| | 31 | 31 | 31 | 31 |
| +0.5 | | | | |
| | 15 | 15 | 16 | 16 |
| Internal setting temp. 0 | | | | |
| | 15 | 15 | 15 | 15 |
| -0.5 | | | | |
| | 15 | 15 | 15 | 15 |
| Compressor OFF temp. -1.0 | | | | |
| | Comp OFF | Comp OFF | Comp OFF | Comp OFF |
| Outdoor Air Temperature | Less than 38°C | 38°C and above | Less than 38°C | 38°C and above |
| Model No. | CS-G95KE | | CS-G125KE | |

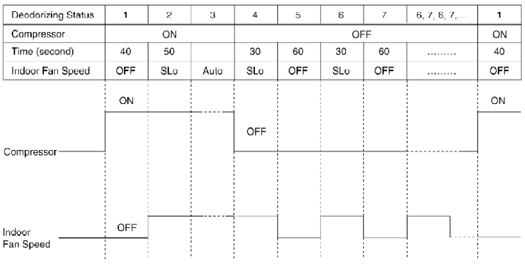
- **Compressor OFF temperature = Compressor ON temperature.**
- **The operation frequency can be changed every 30 seconds.**
- **30 minutes from the start of the operation, the compressor is operating at Fc max Hz.**
- **The compressor stops when the intake air temperature reaches 1°C below internal setting temperature and continues for 3 minutes.**
- **When the compressor stops, it will not begin operation for 3 minutes. (Time Delay Safety Control)**
- **When the intake air temperature reaches the Compressor ON**

**temperature, the Compressor starts operation.**

- **When the compressor stops, the outdoor fan motor stops 30 seconds later.**

**B. Deodorizing Control**

- **This control is available during automatic fan speed for Cooling and Soft Dry Operation. It is not available during anti-freezing control.**



| Deodorizing Status | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 6, 7, 6, 7,... | 1 |
|---|---|---|---|---|---|---|---|---|---|
| Compressor | | ON | | | | OFF | | | ON |
| Time (second) | 40 | 50 | | 30 | 60 | 30 | 60 | ……… | 40 |
| Indoor Fan Speed | OFF | SLo | Auto | SLo | OFF | SLo | OFF | ……… | OFF |

- **When the compressor is in operation, the deodorizing status starts from 1 → 2 → 3.**
- **When the compressor stops operation, the deodorizing status starts from 4 → 5 → 6 → 7.**
- **If the compressor still stops operation after 3 minutes, the deodorizing status will start from 6.**

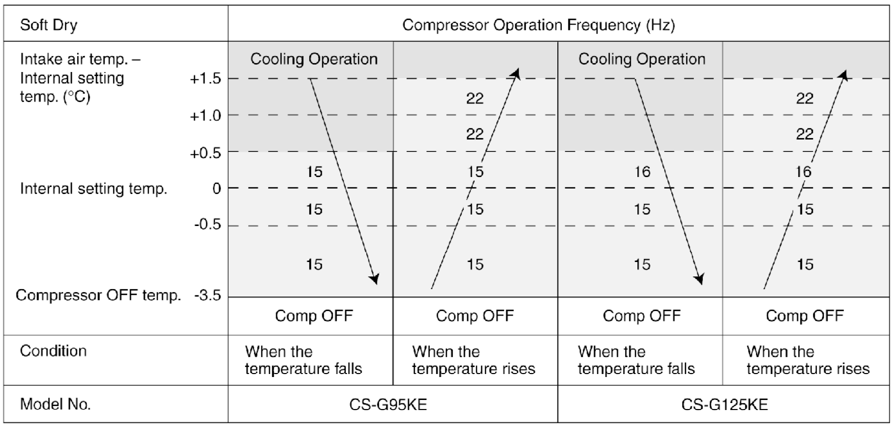
**C. Sensible Heat Control**

- **This control is to improve the feeling in high fan speed during low operation frequency. When the operation frequency is less than 33Hz (CU-G95KE) or 36Hz (CU-G125KE), the fan speed will reduce. When the operation frequency is increased to 40Hz (CU-G95KE) or 49Hz (CU-G125KE) continuously for 5 minutes, the fan speed will resume to normal condition.**

## 3. Soft Dry Operation

**A. Room Temperature Control**

**At the start of operation, cooling operation is running until the intake air temperature is 0.5°C higher than internal setting temperature, then the operation will shift to Soft Dry with indoor fan speed SLo.**

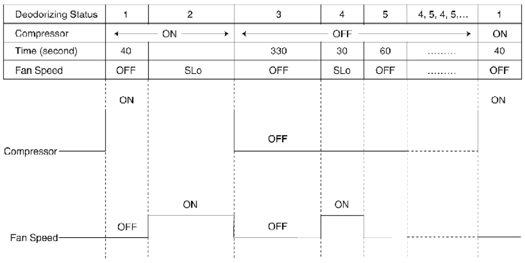


| Soft Dry | Compressor Operation Frequency (Hz) | | | |
|---|---|---|---|---|
| Intake air temp. – Internal setting temp. (°C) | Cooling Operation | | Cooling Operation | |
| +1.5 | | | | |
| +1.0 | | 22 | | 22 |
| +0.5 | | 22 | | 22 |
| Internal setting temp. 0 | 15 | 15 | 16 | 16 |
| -0.5 | 15 | 15 | 15 | 15 |
| | 15 | 15 | 15 | 15 |
| Compressor OFF temp. -3.5 | Comp OFF | Comp OFF | Comp OFF | Comp OFF |
| Condition | When the temperature falls | When the temperature rises | When the temperature falls | When the temperature rises |
| Model No. | CS-G95KE | | CS-G125KE | |

- **Compressor OFF temperature = Compressor ON temperature.**
- **The operation frequency changes every 30 seconds.**
- **30 minutes from the start of the operation, the compressor is operating at Fc max Hz.**
- **The Compressor stops when the intake air temperature reaches 3.5°C below internal setting temperature and continues for 3 minutes.**
- **When the Compressor stops operation, indoor fan stops for 330 seconds.**
- **When the Compressor stops, it will not begin operation for 3 minutes. (Time Delay Safety Control)**
- **When the intake air temperature reaches the Compressor ON temperature, the Compressor starts operation immediately.**
- **When the Compressor stops, the outdoor fan motor stops 30 seconds later.**

**B. Deodorizing Control**

- **This control is available during automatic fan speed for Cooling and Soft Dry Operation. It is not available during anti-freezing control.**



| Deodorizing Status | 1 | 2 | 3 | 4 | 5 | 4, 5, 4, 5,… | 1 |
|---|---|---|---|---|---|---|---|
| Compressor | ← ON → | | ← OFF → | | | | ON |
| Time (second) | 40 | | 330 | 30 | 60 | ……… | 40 |
| Fan Speed | OFF | SLo | OFF | SLo | OFF | ……… | OFF |

- **When the compressor is in operation, the deodorizing status starts from 1 → 2.**
- **When the compressor stops operation, the deodorizing status starts from 3 → 4 → 5.**
- **If the compressor stops operation, indoor fan stops for 330 seconds.**

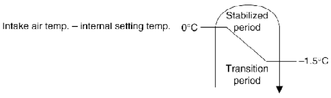
### C. Sensible Heat Control

- **This control is to improve the feeling in high fan speed and low operation frequency. When the operation frequency is less than 33Hz (CU-G95KE) or 36Hz (CU-G125KE), the fan speed will reduce. When the operation frequency is increased to 40Hz (CU-C95KE) or 49Hz (CU-C125KE) continuously for 5 minutes, the fan speed will resume to normal condition. (During Cooling operation).**

## 4. Heating Operation

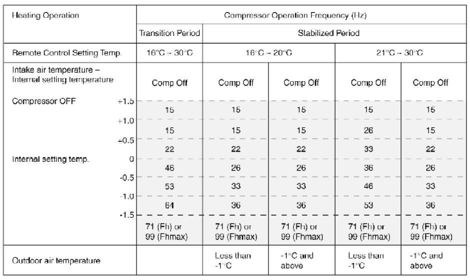
### A. Room Temperature Control

- **During heating operation, the room temperature control depends on intake air temperature and internal setting temperature. Basically it can be divided into 2 periods as shown below:**



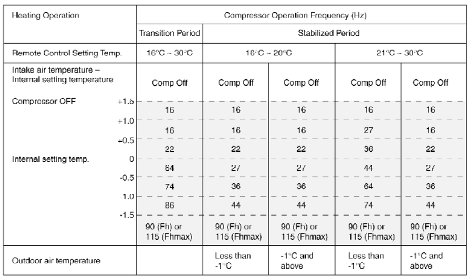
**(i) When indoor fan speed is Medium of above.**

**CS-G95KE**



| Heating Operation | | Compressor Operation Frequency (Hz) | | | | |
|---|---|---|---|---|---|---|
| | | Transition Period | Stabilized Period | | | |
| Remote Control Setting Temp. | | 16°C ~ 30°C | 16°C ~ 20°C | | 21°C ~ 30°C | |
| Intake air temperature – Internal setting temperature | | Comp Off | Comp Off | Comp Off | Comp Off | Comp Off |
| Compressor OFF | +1.5 | | | | | |
| | | 15 | 15 | 15 | 15 | 15 |
| | +1.0 | | | | | |
| | | 15 | 15 | 15 | 26 | 15 |
| | +0.5 | | | | | |
| | | 22 | 22 | 22 | 33 | 22 |
| Internal setting temp. | 0 | | | | | |
| | | 46 | 26 | 26 | 36 | 26 |
| | -0.5 | | | | | |
| | | 53 | 33 | 33 | 46 | 33 |
| | -1.0 | | | | | |
| | | 64 | 36 | 36 | 53 | 36 |
| | -1.5 | | | | | |
| | | 71 (Fh) or 99 (Fhmax) | 71 (Fh) or 99 (Fhmax) | 71 (Fh) or 99 (Fhmax) | 71 (Fh) or 99 (Fhmax) | 71 (Fh) or 99 (Fhmax) |
| Outdoor air temperature | | | Less than -1°C | -1°C and above | Less than -1°C | -1°C and above |

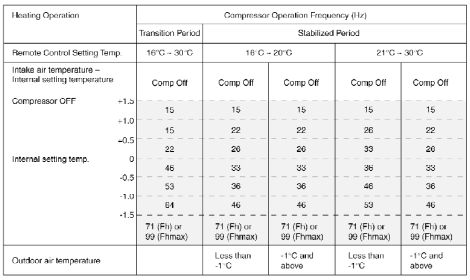
**CS-G125KE**



| Heating Operation | | Compressor Operation Frequency (Hz) | | | | |
|---|---|---|---|---|---|---|
| | | Transition Period | Stabilized Period | | | |
| Remote Control Setting Temp. | | 16°C ~ 30°C | 16°C ~ 20°C | | 21°C ~ 30°C | |
| Intake air temperature – Internal setting temperature | | Comp Off | Comp Off | Comp Off | Comp Off | Comp Off |
| Compressor OFF | +1.5 | | | | | |
| | | 16 | 16 | 16 | 16 | 16 |
| | +1.0 | | | | | |
| | | 16 | 16 | 16 | 27 | 16 |
| | +0.5 | | | | | |
| | | 22 | 22 | 22 | 36 | 22 |
| Internal setting temp. | 0 | | | | | |
| | | 64 | 27 | 27 | 44 | 27 |
| | -0.5 | | | | | |
| | | 74 | 36 | 36 | 64 | 36 |
| | -1.0 | | | | | |
| | | 86 | 44 | 44 | 74 | 44 |
| | -1.5 | | | | | |
| | | 90 (Fh) or 115 (Fhmax) | 90 (Fh) or 115 (Fhmax) | 90 (Fh) or 115 (Fhmax) | 90 (Fh) or 115 (Fhmax) | 90 (Fh) or 115 (Fhmax) |
| Outdoor air temperature | | | Less than -1°C | -1°C and above | Less than -1°C | -1°C and above |

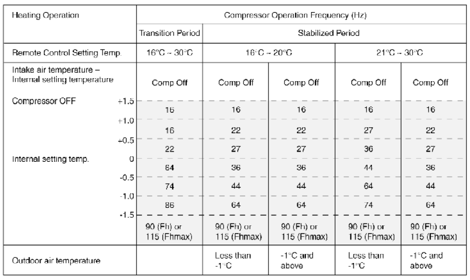
**(ii) When indoor fan speed is lower than Medium.**

**CS-G95KE**



| Heating Operation | | Compressor Operation Frequency (Hz) | | | | |
|---|---|---|---|---|---|---|
| | | Transition Period | Stabilized Period | | | |
| Remote Control Setting Temp. | | 16°C ~ 30°C | 16°C ~ 20°C | | 21°C ~ 30°C | |
| Intake air temperature – Internal setting temperature | | Comp Off | Comp Off | Comp Off | Comp Off | Comp Off |
| Compressor OFF | +1.5 | | | | | |
| | | 15 | 15 | 15 | 15 | 15 |
| | +1.0 | | | | | |
| | | 15 | 22 | 22 | 26 | 22 |
| | +0.5 | | | | | |
| | | 22 | 26 | 26 | 33 | 26 |
| Internal setting temp. | 0 | | | | | |
| | | 46 | 33 | 33 | 36 | 33 |
| | -0.5 | | | | | |
| | | 53 | 36 | 36 | 46 | 36 |
| | -1.0 | | | | | |
| | | 64 | 46 | 46 | 53 | 46 |
| | -1.5 | | | | | |
| | | 71 (Fh) or 99 (Fhmax) | 71 (Fh) or 99 (Fhmax) | 71 (Fh) or 99 (Fhmax) | 71 (Fh) or 99 (Fhmax) | 71 (Fh) or 99 (Fhmax) |
| Outdoor air temperature | | | Less than -1°C | -1°C and above | Less than -1°C | -1°C and above |

**CS-G125KE**



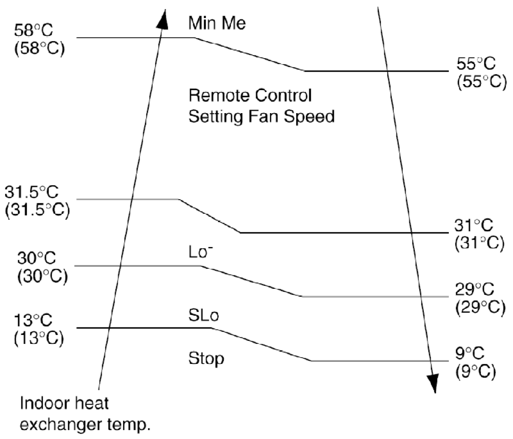
| Heating Operation | | Compressor Operation Frequency (Hz) | | | | |
|---|---|---|---|---|---|---|
| | | Transition Period | Stabilized Period | | | |
| Remote Control Setting Temp. | | 16°C ~ 30°C | 16°C ~ 20°C | | 21°C ~ 30°C | |
| Intake air temperature – Internal setting temperature | | Comp Off | Comp Off | Comp Off | Comp Off | Comp Off |
| Compressor OFF | +1.5 | | | | | |
| | | 16 | 16 | 16 | 16 | 16 |
| | +1.0 | | | | | |
| | | 16 | 22 | 22 | 27 | 22 |
| | +0.5 | | | | | |
| | | 22 | 27 | 27 | 36 | 27 |
| Internal setting temp. | 0 | | | | | |
| | | 64 | 36 | 36 | 44 | 36 |
| | -0.5 | | | | | |
| | | 74 | 44 | 44 | 64 | 44 |
| | -1.0 | | | | | |
| | | 86 | 64 | 64 | 74 | 64 |
| | -1.5 | | | | | |
| | | 90 (Fh) or 115 (Fhmax) | 90 (Fh) or 115 (Fhmax) | 90 (Fh) or 115 (Fhmax) | 90 (Fh) or 115 (Fhmax) | 90 (Fh) or 115 (Fhmax) |
| Outdoor air temperature | | | Less than -1°C | -1°C and above | Less than -1°C | -1°C and above |

- **Compressor OFF temperature = compressor ON temperature.**
- **The operation frequency changes every 30 seconds.**
- **When the difference of the intake air temperature and Internal setting temperature is -1.5°C or more, compressor will operate at Fh continuously for 3 minutes and then change over to Fhmax.**
- **The compressor stops when the intake air temperature reaches 1.5°C above internal setting temperature and continues for 3 minutes.**
- **When the compressor stops, it will not start operation for 3 minutes. (Time Delay Safety Control)**
- **When the intake air temperature decreases to the compressor ON temperature, the compressor starts immediately.**
- **When the compressor stops, the outdoor fan motor stops 30 seconds later.**

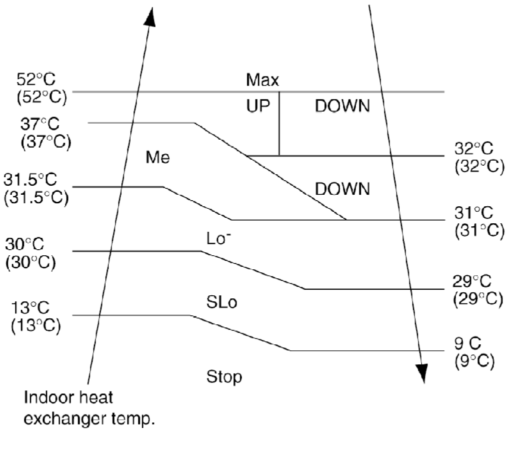
## B. Anti Cold Draft Control

### (i) Indoor Fan Control / Indoor fan speed and airflow direction varies in accordance to the indoor heat exchanger temperature as shown below:

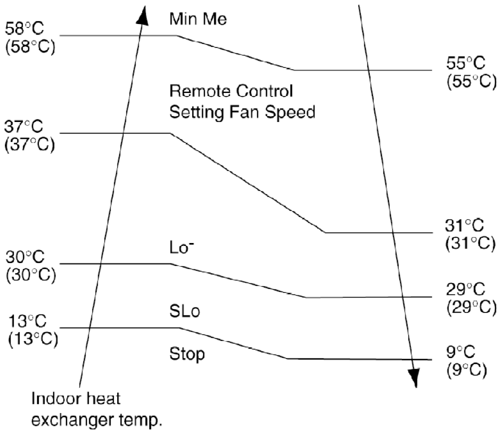
### (a) Manual Fan speed control
### (Auto Airflow Direction Control)


58°C
(58°C)
Min Me
55°C
(55°C)
Remote Control
Setting Fan Speed
31.5°C
(31.5°C)
31°C
(31°C)
30°C
(30°C)
Lo-
29°C
(29°C)
13°C
(13°C)
SLo
Stop
9°C
(9°C)
Indoor heat
exchanger temp.

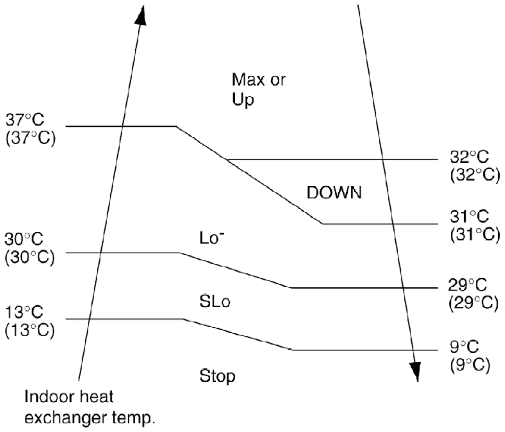
### (b) Auto Fan speed control
### (Auto Airflow Direction Control)


52°C
(52°C)
Max
UP
DOWN
37°C
(37°C)
32°C
(32°C)
Me
31.5°C
(31.5°C)
DOWN
31°C
(31°C)
30°C
(30°C)
Lo-
29°C
(29°C)
13°C
(13°C)
SLo
9 C
(9°C)
Stop
Indoor heat
exchanger temp.

### (Manual Airflow Direction Control)


58°C
(58°C)
Min Me
55°C
(55°C)
Remote Control
Setting Fan Speed
37°C
(37°C)
31°C
(31°C)
30°C
(30°C)
Lo-
29°C
(29°C)
13°C
(13°C)
SLo
Stop
9°C
(9°C)
Indoor heat
exchanger temp.

**(Manual Airflow Direction Control)**


Max or
Up
37°C
(37°C)
32°C
(32°C)
DOWN
31°C
(31°C)
30°C
(30°C)
Lo-
29°C
(29°C)
13°C
(13°C)
SLo
9°C
(9°C)
Stop
Indoor heat
exchanger temp.

**Note:**

**- UP means fan speed is increased by 1 rank.**

**- DOWN means fan speed is decreased by 1 rank.**

**- Max means fan speed is running at maximum auto fan speed.**

**- Temperature in ( ) is indicating when powerful mode is selected.**

**(ii) Hot Start**

**- At the start of heating operation, the indoor fan stops and compressor operates at Fhmax frequency 99Hz (CS-G95KE) or 115Hz (CS-G125KE). This is to heat up the indoor heat exchanger in order to avoid cold air discharged.**

**- Hot Start ends when**

**a. Indoor heat exchanger temperature reaches over 15°C**

**or**

**b. 4 minutes after heating operation starts.**

**- After Hot Start operation, compressor operates at Fhmax 99Hz (CS-G95KE) or 115Hz (CS-G125KE) for 2 minutes.**

**(iii) Vertical and Horizontal Airflow Direction Control**

**- Vertical and horizontal airflow direction control is in accordance to indoor heat exchanger temperature.**
**The control is valid for automatic airflow direction only.**

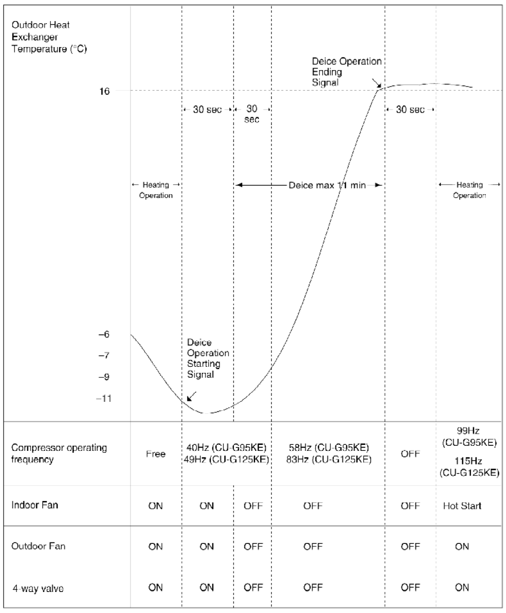
**C. Deice Operation**

**Deice operation occurs when the deice operation starting signal is generated. This happens when one of the following conditions occurs. However, the first deice operation will begin 1 hour after start of heating operation.**

| | Outdoor Heat Exchanger Temp. Th < 3°C | Outdoor Heat Exchanger Temp. (Th) | Outdoor Temp. (To) |
|---|---|---|---|
| Case 1 | 120 minutes continuously | Th < -6°C for 3 min continuously | To > -1°C |
| Case 2 | 80 minutes continuously | Th < -7°C for 3 min continuously | To > -1°C |
| Case 3 | 40 minutes continuously | Th < -9°C for 3 min continuously | To > -3°C |
| Case 4 | 40 minutes continuously | Th < -11°C for 3 min continuously | To > -3°C |

**Note: The above 4 cases are under compressor operating condition.**

**Deice Operation Time Chart**


Outdoor Heat Exchanger Temperature (°C)
16
-6
-7
-9
-11
Deice Operation Ending Signal
30 sec
30 sec
30 sec
Heating Operation
Deice max 11 min
Heating Operation
Deice Operation Starting Signal
Compressor operating frequency
Free
40Hz (CU-G95KE) 49Hz (CU-G125KE)
58Hz (CU-G95KE) 83Hz (CU-G125KE)
OFF
99Hz (CU-G95KE) 115Hz (CU-G125KE)
Indoor Fan
ON
ON
OFF
OFF
OFF
Hot Start
Outdoor Fan
ON
ON
OFF
OFF
OFF
ON
4-way valve
ON
ON
OFF
OFF
OFF
ON

**- Compressor frequency is set at 40Hz (CU-G95KE) or 49Hz (CU-G125KE) when the deice operation starting signal is generated.**

**- 30 seconds later deice operation starting signal is generated, indoor fan, outdoor fan, 4-way valve are turned off and compressor operates at 40Hz (CU-G95KE) or 49Hz (CU-G125KE) for 30 seconds. (Deice operation starts)**

**- During deice operation, the compressor operating frequency is set at 58Hz (CU-G95KE) or 83Hz (CU-G125KE).**

**- Deice will end when the outdoor heat exchanger temperature rises to 16°C or after 11 minutes.**

### D. Standby Control

**(a) The purpose of Standby Control is to warm up the compressor when outdoor temperature i**
**The standby control will be activated when all of the followings occur.**

**(i) Main power is supplied.**
**(ii) Unit is not operating.**
**(iii) Outdoor ambient temperature is below 3°C.**
**(iv) Compressor stops more than 3 hours.**

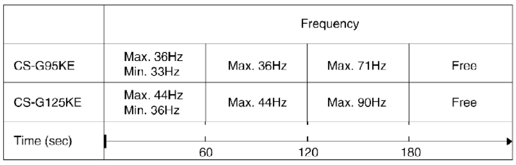
**(b) When the standby control is activated, low electricity will be supplied to compressor for 1 m**
**stops for 4 minutes. This condition is repeated until standby control is cancelled. It will con**
**about 35 W of electric power.**

| | | | | | |
|---|---|---|---|---|---|
| **Electricity supplied to compressor** | **ON** | **OFF** | **ON** | **OFF** | **. . . . . . .** |
| **Time** | **1 min** | **4 min** | **1 min** | **4 min** | **. . . . . . .** |

**(c) Standby control will be cancelled when one of the following conditions occurs.**

- **(i) Unit starts operation.**
- **(ii) Outdoor ambient temperature ≥ 5°C**
- **(iii) Compressor starts operation.**
- **(iv) Protection control is activated.**

**(b) When the unit is switched on by the remote control, the compressor operates at frequency in below:-**



| | Frequency | | | |
|---|---|---|---|---|
| CS-G95KE | Max. 36Hz<br>Min. 33Hz | Max. 36Hz | Max. 71Hz | Free |
| CS-G125KE | Max. 44Hz<br>Min. 36Hz | Max. 44Hz | Max. 90Hz | Free |
| Time (sec) | 60 | 120 | 180 | |

**(e) Jumper (J2) at indoor electronic controller should be open circuit to cancel the standby con**

## 5. Fan Operation

**This operation is enable the fan operation without compressor running. Timer operation is valid for fan operation.**

## 6. Automatic Operation

**When the Automatic mode is selected, the operation mode is decided in accordance to remote control setting temperature, intake air temperature and outdoor air temperature.**

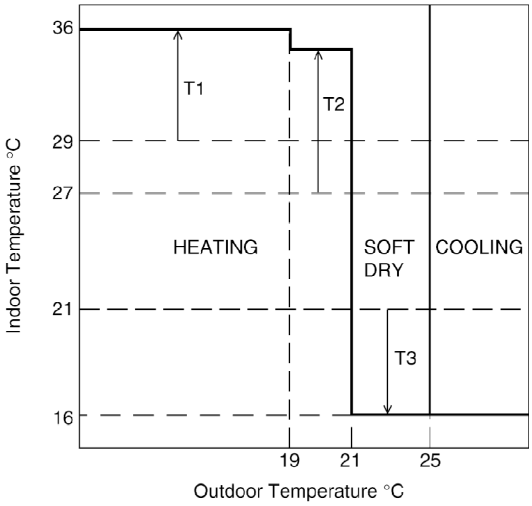
**- During judging the operation mode, indoor fan is running at Lo-**

**speed and outdoor fan at ON in order to sense the indoor intake air temperature and outdoor air temperature for 20 seconds. At this time, Power LED is blinking.**

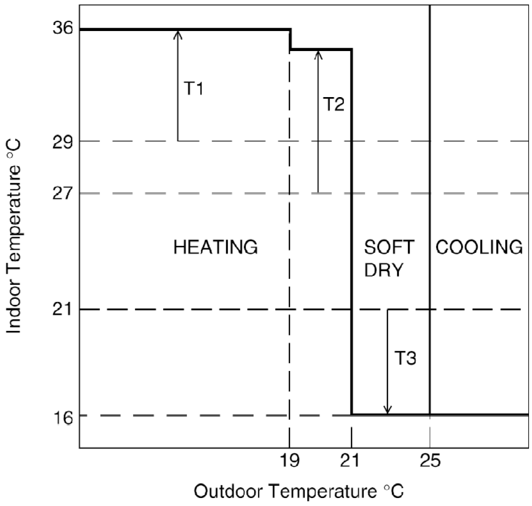
**After the operation mode is selected, Power LED lights up.**

**Refer to the examples below, there are 4 determination charts when automatic mode is selected.**

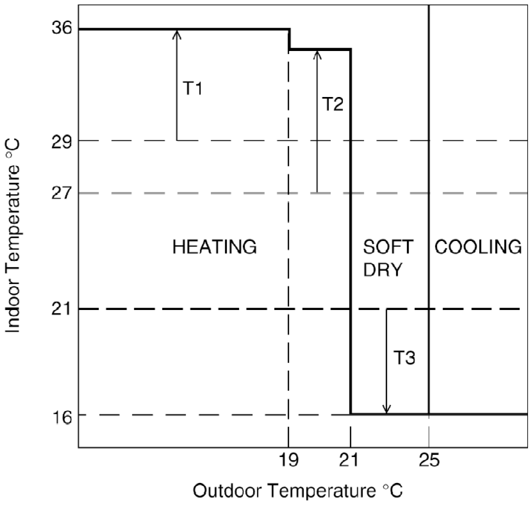
**(a) When setting temperature of remote control is 18°C and below.**



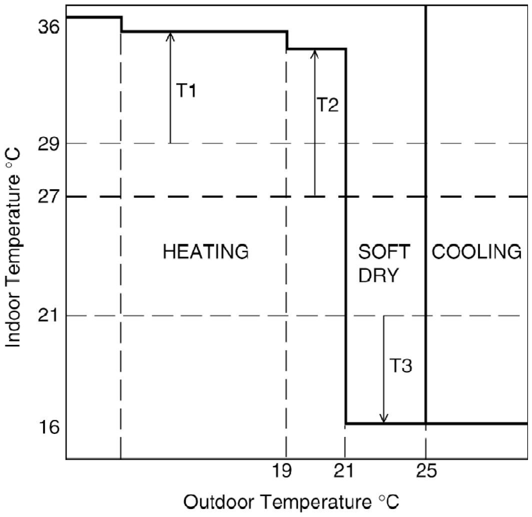
**(b) When setting temperature of remote control is 19°C ~ 22°C.**



**(c) When setting temperature of remote control is 23°C ~ 26°C.**



**(d) When setting temperature of remote control is 27°C and above.**



| Setting Temp. °C | T1 | T2 | T3 |
|---|---|---|---|
| 18 and below | +10 | +8 | -5 |
| 19 - 22 | +8 | +7 | -7 |
| 23 - 26 | +7 | +6 | -7 |
| 27 and above | +6 | +5 | -8 |

**Note:** **Base temperature for T1 is 29°C**

**Base temperature for T2 is 27°C**

**Base temperature for T3 is 21°C**

## - When the operation mode is changed over, the value for t1, t2 and t3 are shifted as below:

**Cooling/Soft dry → Heating:** **- 2°C**

**Heating → Cooling/ Soft dry:** **+ 2°C**

**- When the indoor intake air temperature is lower than 16°C, heating operation is immediately started.**

**- When the outdoor air temperature is more than 25°C, and the intake air temperature is over 16°C, cooling operation is immediately started.**

**- The operation mode is judged every 30 minutes.**

**- When the operation mode (Heating, Cooling or Soft Dry) is decided, the internal setting temperature will shift as shown below:**

Remote control setting temperature

+

Outdoor temperature shift

+

Fan speed shift

Automatic mode shift

+

| | |
|---|---|
| Cooling | +0.75°C |
| Soft Dry | 0°C |
| Heating | -0.75°C |

↓

**INTERNAL SETTING TEMPERATURE**

## 7. Indoor Fan Speed Control

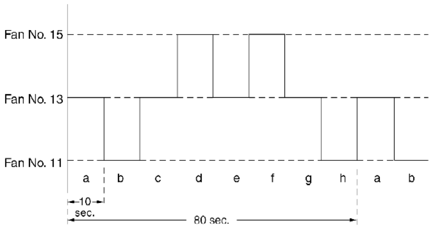
| Fan Speed No. | Voltage Supply to DC (V) CS-G95KE | Voltage Supply to DC (V) CS-G125KE | Cooling | | Soft Dry | Remarks | Heating | | Rema |
|---|---|---|---|---|---|---|---|---|---|
| | | | Manual | Auto | | | Manual | Auto | |
| 0 | | | OFF | OFF | OFF | | OFF | OFF | -Hot Start Control |
| 1 | | | | | | | | | |
| 2 | 15.6 | 16.3 | | | SLo | -Deodorizing control<br>-Sleep Mode (Soft Dry) | | | -SLo: Hot Start Co |
| 3 | 16.3 | 17.6 | | | Lo- | -Auto operation mode judgement<br>-Quiet operation | | | |
| 4 | 17.6 | 20.3 | | | | | | | |
| 5 | 17.9 | 21.7 | | | | | | | -Lo- :<br>Hot Start Control<br>Sleep Mode<br>Anti Cold Draft Co<br>Thermo OFF |
| 6 | 18.4 | 23.4 | Lo | | | -Sensible Heat Control (Lo)<br>-On Timer preparatory operation + Auto Fan<br>-Sleep mode (Cooling) | | | |
| 7 | 18.7 | 24.0 | | | | -Sensible Heat Control (Me-) | | Auto Fan (Min.) | |
| 8 | 19.3 | 24.4 | | | | -Manual Lo Fan + Powerful | Lo | | -On Timer prepara<br>+ Auto Fan |
| 9 | 20.1 | 26.4 | | | | -Sensible Heat Control + Auto Fan | | | |
| 10 | 21.4 | 27.1 | Me- | | | -Sensible Heat Control (Me) | | | -Manual Lo Fan + |
| 11 | 22.0 | 27.8 | | Auto Fan | | -Sensible Heat Control + Auto Fan | | | -Auto Fan (min) + |
| 12 | 22.7 | 28.3 | | | | -Manual Me- Fan + Powerful | | | |
| 13 | 23.0 | 28.3 | | Auto Fan | | -Sensible Heat Control (Me+)<br>-Auto Fan + Powerful<br>-Sensible Heat Control + Auto Fan | Me- | | |
| 14 | 23.1 | 28.4 | Me | | | -Temporary Operation | | | |
| 15 | 23.5 | 28.8 | | Auto Fan | | -Auto Fan + Powerful | | Auto Fan (Max.) | -Manual Me- Fan + |
| 16 | 24.3 | 29.1 | | | | -Manual Me Fan + Powerful<br>-Sensible Heat Control (Hi) | | | |
| 17 | 25.0 | 29.8 | | | | -Auto Fan + Powerful | Me | | -Temporary Opera |
| 18 | 25.3 | 29.8 | Me+ | | | | | | |
| 19 | 26.0 | 30.1 | | | | | | | -Manual Me Fan + |
| 20 | 26.4 | 30.5 | | | | -Manual Me+ Fan + Powerful | | | |
| 21 | 26.4 | 30.7 | | | | | | | |
| 22 | 26.5 | 30.8 | Hi | | | -Test Run | | | |
| 23 | 27.3 | 31.1 | | | | | Me+ | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **24** | **27.6** | **31.5** | | | | **-Manual Hi Fan + Powerful** | | | |
| **25** | **28.0** | **31.9** | | | | | | | **-Manual Me+ Fan -** |
| **26** | **28.3** | **32.3** | | | | | | | |
| **27** | **29.0** | **32.6** | | | | **-SHi: Maximum Capacity Operation** | | | **-Auto Fan (max) +** |
| **28** | **29.3** | **32.6** | | | | | | | |
| **29** | **29.8** | **33.0** | | | | | | | |
| **30** | **29.8** | **33.4** | | | | | **SHi** | | **-Manual Hi Fan + F**<br>**-On Timer prepara + Manual Fan + Po**<br>**-Test Run** |
| **31** | **32.7** | **36.9** | | | | | | | **-SSHi: Maximum C Operation** |

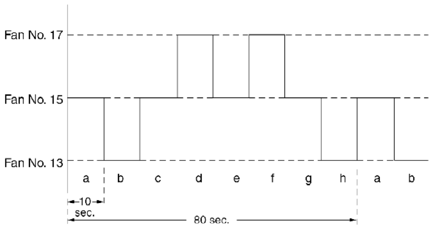
**(a) Cooling Automatic Fan Speed**

**The Automatic Fan Speed for cooling operation is shown as below:**

**(i) When Automatic Fan Speed is selected**



**(ii) When Automatic Fan Speed and Powerful Mode are selected**



**Note:**

**The Fan Speed will change every 10 seconds and it will be repeated from a to h every 80 seconds.**

**(b) Heating Automatic Fan Speed**

**The Automatic Fan Speed for heating operation is shown below:**

- **When the Automatic Fan Speed is selected, the Fan Speed will change every 10 seconds from Fan Speed No.7 to No.15 depending on indoor heat exchanger temperature. Each time the Fan Speed will move 1 rank up or down**
- **When Automatic Fan Speed and Powerful Mode are selected, the Fan Speed will change for every 10 seconds from Fan Speed No. 11 to No. 27 depend on heat exchanger temperature. Each time the**

**Fan Speed will move 1 rank up or down.**

**(c) Cooling Operation at SHi Speed**

**During Cooling operation, Indoor Fan speed is set at SHi when the following conditions occur:**

- **Outside air temperature is 30°C or above**
- **Compressor operates at 50Hz (CU-G95KE) or 70Hz (CU-G125KE) and above**
- **Remote control setting fan speed is High**
- **Indoor intake air temperature is 24°C or above**
- **Remote control setting temperature is 16°C**
- **Within 30 minutes after start of operation**

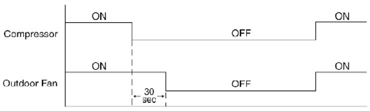
**(d) Heating Operation at SSHi Speed**

**During Heating operation, Indoor Fan speed is set at SSHi when the following conditions occur:**

- **Heating operation for 2 hours or more**
- **When remote control setting fan speed is High**
- **Indoor intake air temperature is 17°C or above and less than 23°C**
- **Outdoor air temperature is below 4°C**
- **Remote control setting temperature is 30°C**
- **Compressor operates at 71Hz (CU-G95KE) or 90Hz (CU-G125KE) and above**
- **Airflow Direction is set at Manual**

## 8. Outdoor Fan Control

- **Outdoor fan motor is controlled with 1 speed only. Fan is in operation when the compressor starts operation and stops 30 seconds after compressor stops operation.**



## 9. Airflow Direction

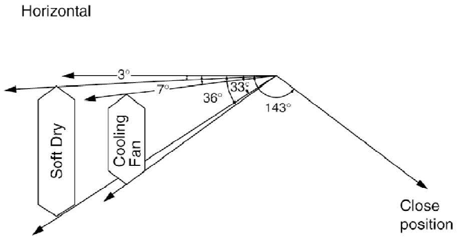
**A. Vertical Airflow Direction**

- **Vane angle setting**

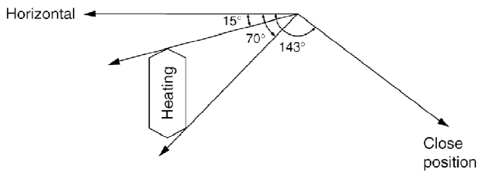
| Operation | | | | Vane angle | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 |
| **Heating** | **Airflow direction auto** | **Indoor heat exchanger temperature** | **C** | **33°** | | | |
| | | | **B** | **70°** | | | |
| | | | **A** | **15°** | | | |
| | **Airflow direction manual** | **-** | | **13°** | **33°** | **46°** | **57°** |
| **Cooling** | **Airflow direction auto** | **-** | | **7° ~ 36°** | | | |
| | | **Anti-dew formation control** | | **11° ~ 25°** | | | |
| | **Airflow direction manual** | **-** | | **7°** | **15°** | **25°** | **33°** |
| | | **Anti-dew formation control** | | **11°** | **15°** | **18°** | **22°** |
| **Soft Dry** | **Airflow direction auto** | **-** | | **3° ~ 33°** | | | |
| | | **Anti-dew formation control** | | **11° ~ 25°** | | | |
| | **Airflow direction manual** | **-** | | **3°** | **8°** | **18°** | **25°** |
| | | **Anti-dew formation control** | | **11°** | **15°** | **18°** | **22°** |
| **Fan** | **Airflow direction auto** | | | **7° ~ 36°** | | | |
| | **Airflow direction manual** | | | **7°** | **15°** | **25°** | **33°** |
| **Stop** | | | | **143°** | | | |

## - Setting angle

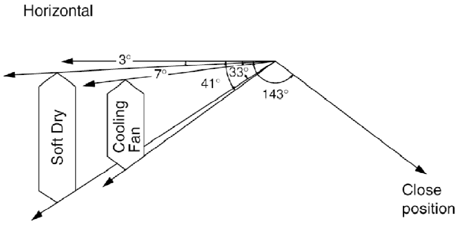
**Cooling, Soft Dry & Fan** - **Auto Airflow Direction**


Horizontal
3°
7°
33°
36°
143°
Soft Dry
Cooling
Fan
Close position

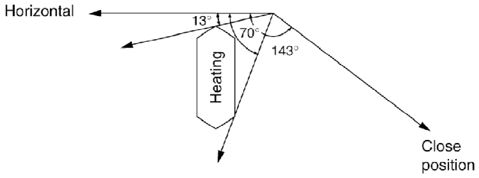
**Heating** - **Auto Airflow Direction**


Horizontal
15°
70°
143°
Heating
Close position

**Cooling, Soft Dry & Fan** - **Manual Airflow Direction**


Horizontal
3°
7°
33°
41°
143°
Soft Dry
Cooling
Fan
Close position

**Heating** - **Manual Airflow Direction**

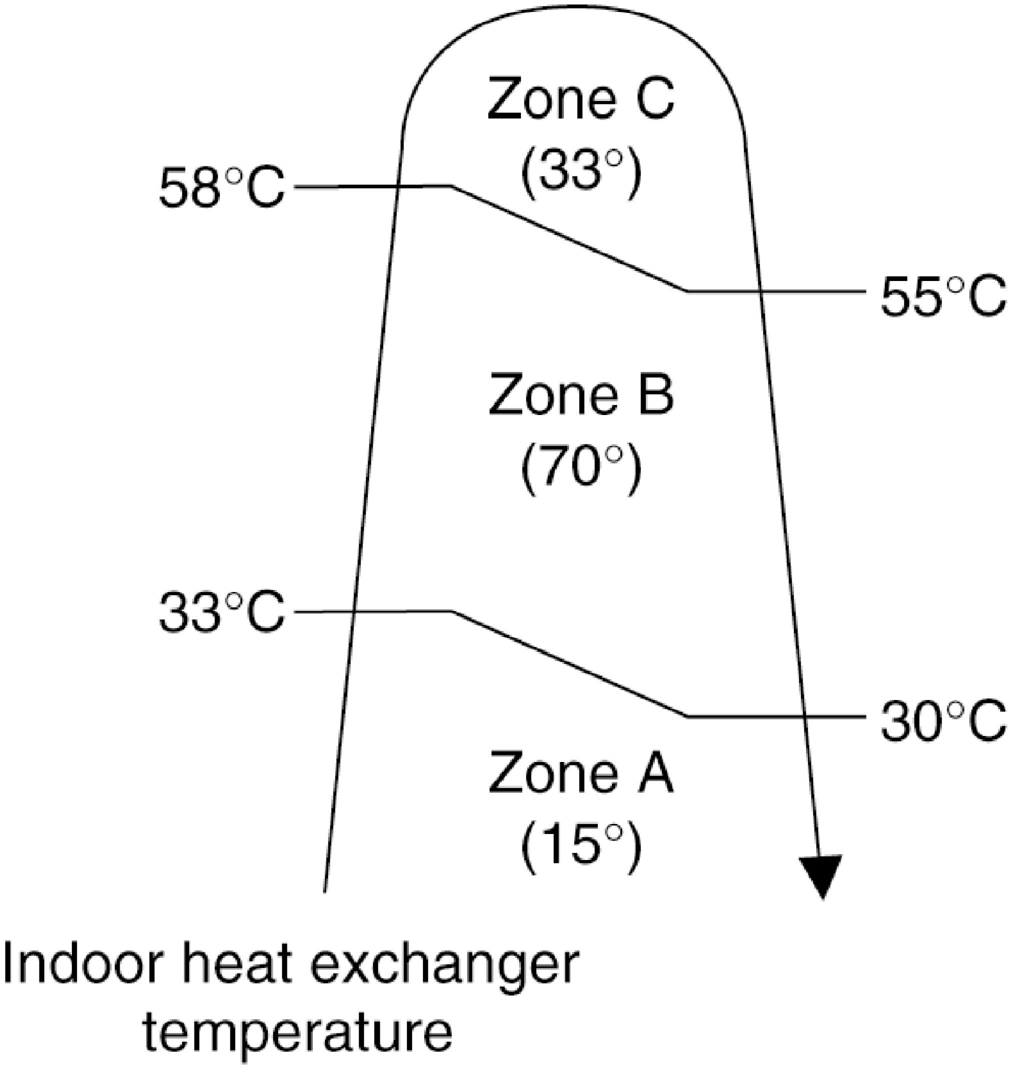

Horizontal
13°
70°
143°
Heating
Close position

### (a) Vertical Airflow Direction Manual

**By pressing the remote control vertical airflow direction setting switch, the vane will move to the indicated angle (1, 2, 3, 4, 5) as shown in the table. When the remote control OFF/ON switch is pressed to stop the unit, the vane will move to the Close position.**

**(b) Vertical Airflow Direction Auto**

**By pressing the vertical airflow direction to AUTO, the vane swings up and down from 7° ~ 36° (during Cooling and Fan) and 3° ~ 33° (during Soft Dry). During Heating operation, the vane angle will shift according to the indoor heat exchanger temperature as shown below.**

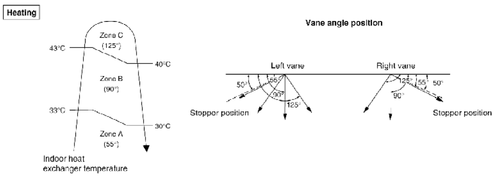


**B. Horizontal Airflow Direction**

**(a) Automatic Horizontal Vane angle setting**

**By setting the horizontal airflow direction to AUTO, the vanes swing left and right from 55° ~ 125° during Cooling, Soft Dry and Fan operation. During Heating operation, the vane angle will shift according to the indoor heat exchanger temperature as shown below.**

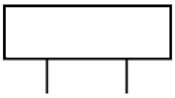
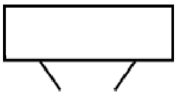
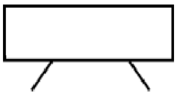
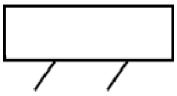
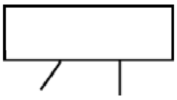
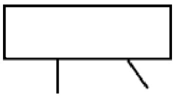
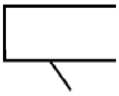
| Operation | | | Left Vane Position | Right Vane Positior |
|---|---|---|---|---|
| Heating | Indoor heat exchanger temperature | C | 125° | 125° |
| | | B | 90° | 90° |
| | | A | 55° | 55° |
| Cooling | | | 55° ~ 125° | 55° ~ 125° |
| | Anti-dew formation control | | 64° ~ 110° | 64° ~ 110° |
| Soft Dry | | | 55° ~ 125° | 55° ~ 125° |
| | Anti-dew formation control | | 64° ~ 110° | 64° ~ 110° |
| Fan | | | 55° ~ 125° | 55° ~ 125° |


Heating
Zone C
(125°)
43°C
40°C
Zone B
(90°)
33°C
30°C
Zone A
(55°)
Indoor heat
exchanger temperature
Vane angle position
Left vane
Right vane
50°
55°
90°
125°
Stopper position
125°
55°
50°
90°
Stopper position

**(b) Manual Horizontal vane angle setting**

## - By pressing the remote control horizontal airflow direction setting switch, the vane will move to the indicated position (1, 2, 3, 4, 5, 6, 7) as shown in the table.

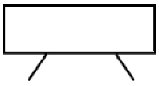
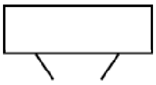
## - Horizontal van angle position

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |

| Operation | | (Left vane position) | | | | | | | (Right vane positic | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 |
| Heating | | 90° | 125° | 55° | 55° | 55° | 90° | 125° | 90° | 125° | 55° | 125° | 90° |
| Cooling | | 90° | 125° | 55° | 55° | 55° | 90° | 125° | 90° | 125° | 55° | 125° | 90° |
| | Anti-dew Formation Control | 90° | 110° | 64° | 64° | 64° | 90° | 110° | 90° | 110° | 64° | 110° | 90° |
| Soft Dry | | 90° | 125° | 55° | 55° | 55° | 90° | 125° | 90° | 125° | 55° | 125° | 90° |
| | Anti-dew Formation Control | 90° | 110° | 64° | 64° | 64° | 90° | 110° | 90° | 110° | 64° | 110° | 90° |
| Fan | | 90° | 125° | 55° | 55° | 55° | 90° | 125° | 90° | 125° | 55° | 125° | 90° |

**(c) Wie / Spot Airflow Setting**

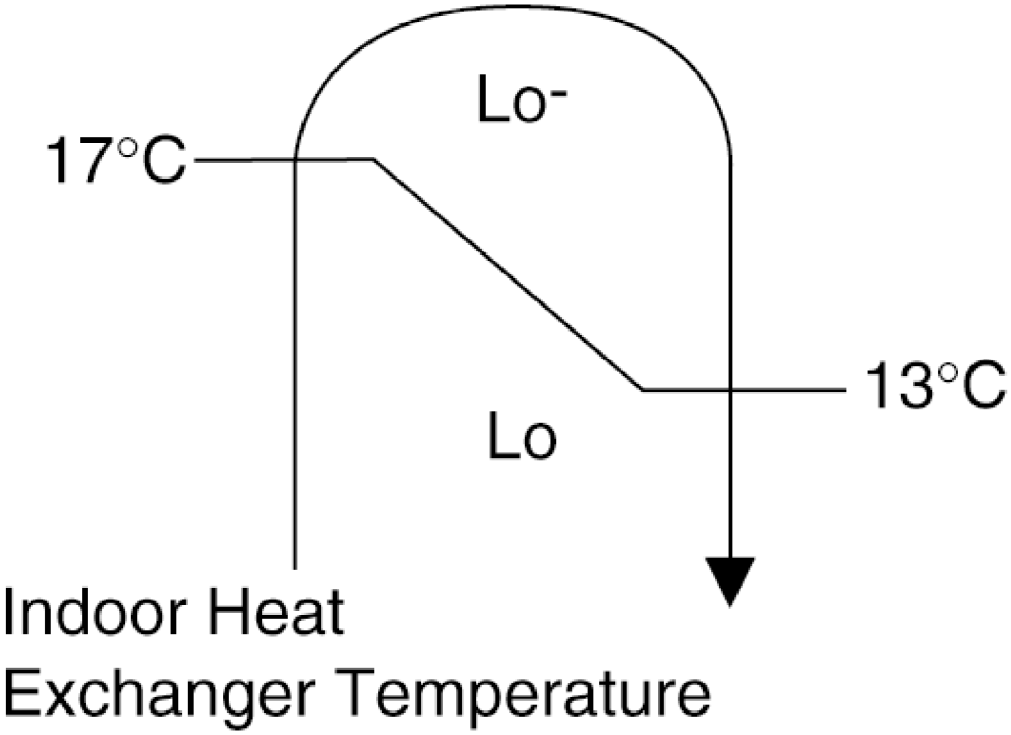
**By pressing the remote control WIDE/SPOT switch, the vane will move to position 3 while WIDE and position 2 while SPOT.**

| | WIDE | SPOT |
|---|---|---|
| **For All Operations** | **3**<br> | **2**<br> |

## 10. Quiet Operation

**The purpose of this control is to reduce indoor operating noise. Indoor fan speed is set to Lo- when the following conditions occur.**

- **Indoor fan speed is set at Low**
- **Indoor heat exchanger temperature rises to 17°C or above**
- **Compressor operates for 5 minutes or more**
- **Operation frequency is less than 33Hz (CU-G95KE) or 36Hz (CU-G125KE)**



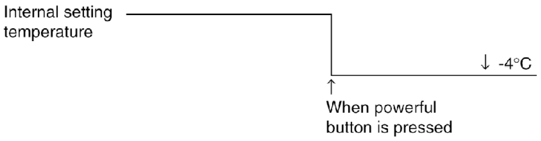
**This control is cancelled when one of the following conditions occurs.**

- Indoor fan speed is not set at Low
- Indoor heat exchanger temperature is decreased to 13°C or below
- Compressor operation frequency is more than 33Hz (CU-G95KE) or 36Hz (CU-G125KE)

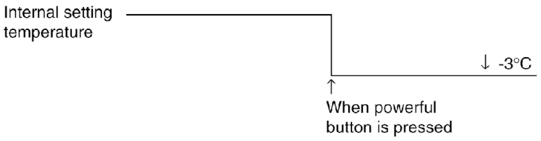
## 11. Powerful Mode Operation

When the powerful mode is selected, the internal setting temperature will shift to achieve the setting temperature quickly.

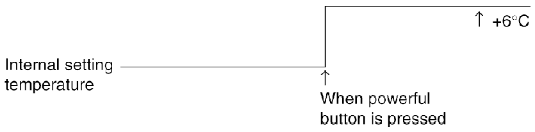
### (a) Cooling Operation


Internal setting temperature
↓ -4°C
When powerful button is pressed

### (b) Soft Dry Operation


Internal setting temperature
↓ -3°C
When powerful button is pressed

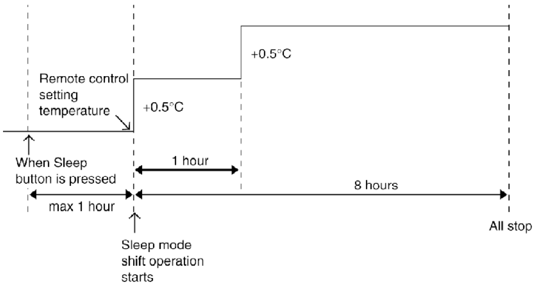
### (c) Heating Operation


↑ +6°C
Internal setting temperature
When powerful button is pressed

## 12. Sleep Mode Operation

### (a) Cooling Operation / Soft Dry Operation

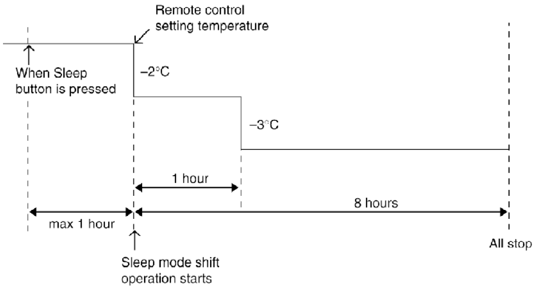
- When the sleep button is pressed, the remote control setting temperature will increase 0.5°C after 1 hour or when the remote control setting temperature is reached. After another hour, 0.5°C will be increased again.


+0.5°C
Remote control setting temperature
+0.5°C
When Sleep button is pressed
1 hour
8 hours
max 1 hour
All stop
Sleep mode shift operation starts

※ **-During sleep shift operation, indoor fan speed operates at Lo (for Cooling operation) or SLo (for Soft Dry operation).**

### (b) Heating Operation

**- When the sleep button is pressed, the remote control setting temperature will decrease 2°C after 1 hour or when the remote control setting temperature is reached. After another hour, 3°C will be decreased again.**


Remote control setting temperature
When Sleep button is pressed
−2°C
−3°C
1 hour
8 hours
max 1 hour
All stop
Sleep mode shift operation starts

※ **-During sleep shift operation, indoor fan speed operates at Lo-.**

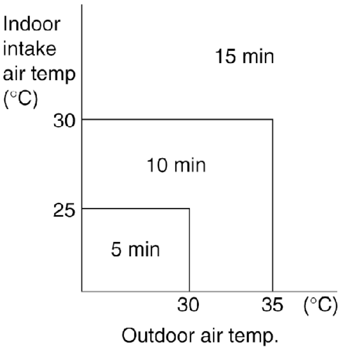
## 13. Delay On Timer Control

**- When the Delayed On Timer is set by using the remote control, the unit will start operate slightly earlier before the set time, so that the room will reach nearly the set temperature by the On Timer set time.**

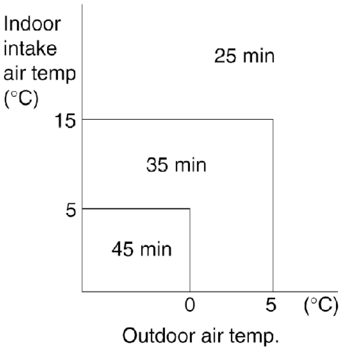
**- 60 minutes before the set time, the indoor fan operates at Lo- and outdoor fan operates for 20 seconds to sense the indoor intake air temperature and outdoor air temperature in order to determine the starting time for preparatory operation. (The Power LED blinks during sampling.)**

- **The time of the preparatory operation will start before the On Timer set time.**

**(a) Cooling/Soft Dry**



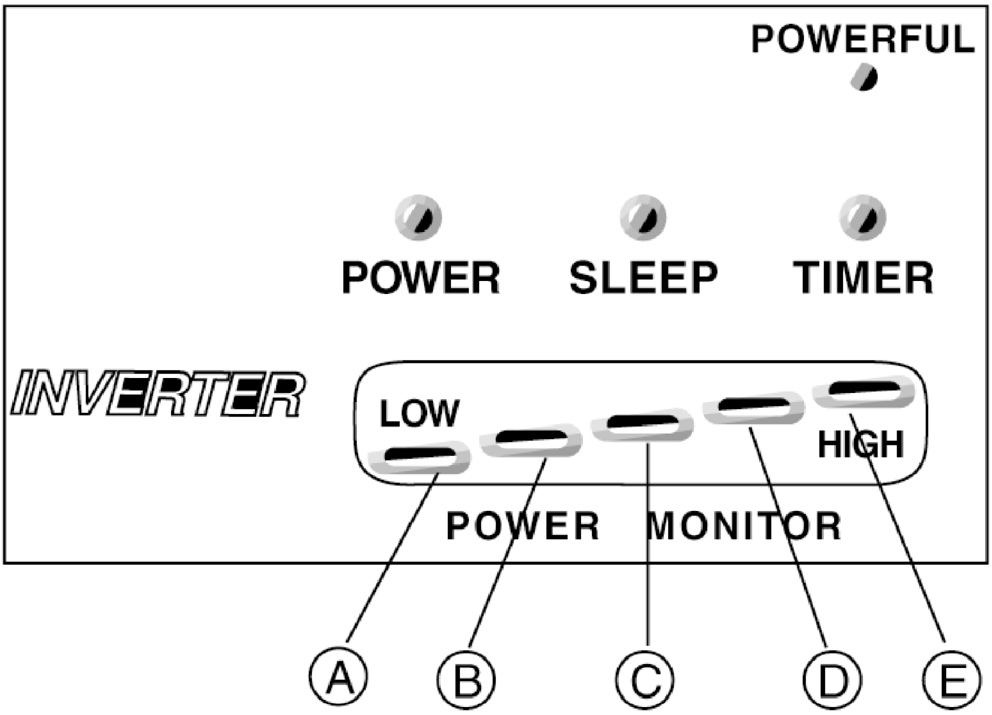
**(b) Heating**



### 14. Auto Restart Control

- **If there is a power failure, operation will automatically be restarted when the power is resumed from 2 minutes. 58 seconds to 3 minutes 52 seconds randomly. It will start with the previous operation mode and airflow direction.**
- **Auto Restart Control is not available when Timer or Sleep Mode is set.**
- **J1 at indoor electronic controller should be open circuit to cancel Auto Restart Control.**

### 15. Power Monitor Display


POWERFUL
POWER
SLEEP
TIMER
INVERTER
LOW
HIGH
POWER MONITOR
A
B
C
D
E

**Power Monitor LED lights on when the compressor is in operation. The number of the LED lights on is in accordance to the compressor operating frequency.**

| Model | Display | A | A, B | A, B, C | A, B, C, D | A, B, C, |
|---|---|---|---|---|---|---|
| CS-G95KE | Cooling & Soft Dry Indication Frequency (Hz) | 15 ~ 26 | 31 ~ 33 | 36 ~ 40 | 43 ~ 46 | 51 ~ |
| | Heating Indication Frequency (Hz) | 15 ~ 26 | 31 ~ 40 | 43 ~ 58 | 63 ~ 64 | 71 ~ |
| CS-G125KE | Cooling & Soft Dry Indication Frequency (Hz) | 15 ~ 27 | 31 ~ 36 | 44 ~ 49 | 58 ~ 64 | 71 ~ |
| | | | | | | |

| Model | Display | A | A, B | A, B, C | A, B, C, D | A, B, C, |
|---|---|---|---|---|---|---|
|  | Heating Indication Frequency (Hz) | 15 ~ 27 | 31 ~ 44 | 58 ~ 79 | 83 ~ 86 | 91 ~ 1 |

### 16. Remote Control Signal Receiving Sound ON/OFF

- Press the Auto button (at indoor unit) for 16 seconds or < 21 seconds. “Beep” “beep” “beep” “beep” will be heard at 16th second. Remove the back cover of Remote Control, short the diagnosis (診断) terminals at the back of remote control to switch to Remote Control signal receiving sound ON/OFF mode. One “beep” will be heard*. Then, press the Auto button once again, “beep” sound will be heard. The Remote Control signal receiving sound has been turned off.
- Repeat the above procedure or reset the main power supply to switch on the remote control signal receiving sound.
  * If “beep” “beep” sound is heard and “E1” or “E2” is displayed, the setting has been switched to H14 diagnosis mode.
  Refer Servicing Information for more details.

### 17. Indoor Power Relay Control

- The power relay turns on when one of the indoor LED lights on.
- The power relay turns off when all of the indoor LEDs lights off.
- When the air conditioner is stopped during operation, the power relay stays ON for 3 minutes.
- The power relay will turn off if a sudden power failure occurs≥0.05 second. The power relay will turn on again after 3-4 minutes (Refer AUTO RESTART CONTROL). It will start with the previous operation condition before the power failure.

## 8.2. Protection

## 1. Protection Control For All Operations

### a. Time Delay Safety Control

- The Compressor is not restarted for 3 minutes after stop of compressor.

### b. 30 Second Forced Operation

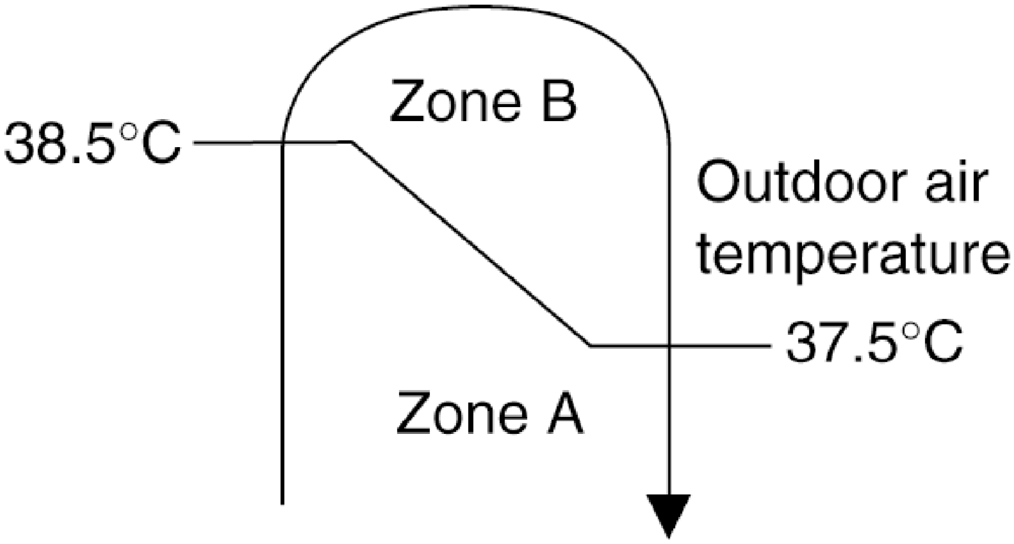
- Once the compressor is ON, it will not turn OFF for 30 seconds. However, it is turned off by remote control or Automatic switch.

### c. Total Running Current Control

- When the outdoor unit total running current (AC) exceeds I1, the frequency is lowered by 1 rank. If I1 is not exceeded for 30 seconds, the frequency is highered by 1 rank at one time. If the outdoor unit total running current exceeds I2, the compressor is immediately stopped for 3 minutes.

**<Cooling, Soft Dry set value>**

| | Zone A | | Zone B | |
|---|---|---|---|---|
| Model No. | CU-C95KE | CU-G125KE | CU-G95KE | CU-G125KE |
| I1 (A) | 5.3 | 6.7 | 4.3 | 5.2 |
| I2 (A) | 7.3 | 10.8 | 7.3 | 10.8 |



**Note: Zone A will be used 30 minutes after operation starts.**

**<Heating set value>**

| Model No. | CU-G95KE | CU-G125KE |
|---|---|---|
| I1 (A) | 6.1 | 9.2 |
| I2 (A) | 7.3 | 10.8 |

**- If the outdoor unit total running current exceeds I2 3 times within 30 minutes, all indoor and outdoor relays will be turned off; TIMER LED will blink and F98 is displayed.**

**d. IPM (Power transistor) Prevention Control**

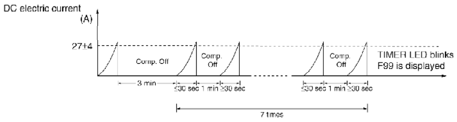
**1. Overheating Prevention Control**

**- When the IPM (power transistor) temperature rises to 100 ± 10°C, the compressor stops immediately. The compressor is restarted when the IPM (power transistor) temperature decreases to 90 ± 10°C after 3 minutes (Time Delay Safety Control). If this condition occurs 4 times within 40 minutes, all indoor and outdoor relays will be turned off; TIMER LED will blink and F96 is displayed.**

**2. DC Peak Current Control**

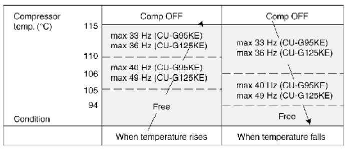
**- When the electric circuit to the IPM (power transistor) exceeds the set value, DC 27 ± 4A, the compressor stops. The compressor restarts after 3 minutes.**

- **If within 30 seconds the set value is exceeded again, the compressor will stop for 1 minute. If this condition repeats for 7 times, all indoor and outdoor relays will be turned off; TIMER LED will blink and F99 is displayed.**



**e. Compressor Overheating Prevention Control**

- **When the temperature of compressor rises to 105°C, the frequency is reduced as shown in diagram below.**
  **When the temperature rises to 115°C or above, the compressor stops. The compressor will start operating at low frequency when the temperature falls to 115°C and resume to normal condition when the temperature falls to 94°C.**


Compressor
temp. (°C)
115
110
106
105
94
Condition
Comp OFF
max 33 Hz (CU-G95KE)
max 36 Hz (CU-G125KE)
max 40 Hz (CU-G95KE)
max 49 Hz (CU-G125KE)
Free
When temperature rises
Comp OFF
max 33 Hz (CU-G95KE)
max 36 Hz (CU-G125KE)
max 40 Hz (CU-G95KE)
max 49 Hz (CU-G125KE)
Free
When temperature falls

- **The compressor stops when the temperature rises to 115°C. If this condition occurs 4 times within 20 minutes, all indoor and outdoor relays will be turned off; TIMER LED will blink and F97 is displayed.**

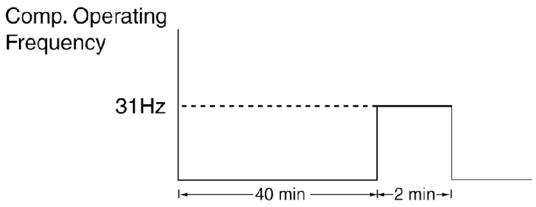
**f. Low Pressure Control (Gas Leakage Detection)**

- **When the following conditions as shown in the below table occur, the compressor stops and restarts after 3 minutes. If this phenomenon is continuously occuring twice within 30 minutes, all indoor and outdoor relays will be turned off; TIMER LED will blink and F91 is displayed.**

| Comp. Frequency ※ | 51 Hz and above | 71 Hz and above | 70 Hz and above | 90 Hz and ab |
|---|---|---|---|---|
| Total Running Current ※ | ≥1.88 A and < 1.9 A | ≥1.88 A and < 2.1 A | ≥1.88 A and < 2.4 A | ≥1.88 A and A |
| Indoor Heat Exchanger Temp. | 15°C or above | 30°C or below | 15°C or above | 30°C or bel |
| Operation | Cooling/Soft Dry | Heating | Cooling/Soft Dry | Heating |
| Model No. | CU-G95KE | | CU-G125KE | |

**g. Minimum Frequency Operation Protection**

**- When the compressor operates at less than 31 Hz for 40 minutes, the operating frequency will increase to 31 Hz for 2 minutes.**



**h. Low Frequency Operation Protection**

| Indoor intake air temp. (°C) | ≥30°C or < 15°C | ≥28°C or < 14°C |
|---|---|---|
| Outdoor air temp. (°C) | ≥38°C or < 16°C | ≥24°C or < 4°C |
| Indoor heat exchanger temp. (°C) | < 30 °C | > 0°C |
| Operation | Cooling/Soft Dry | Heating |

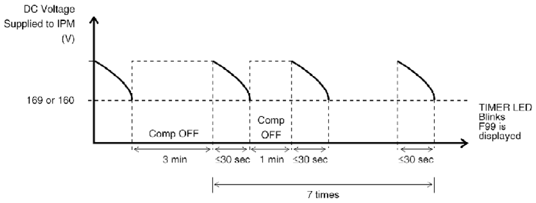
**- When the above conditions occur, the compressor will operate at minimum frequency as below:-**

| | CU-G95KE | CU-G125KE |
|---|---|---|
| Cooling/Soft Dry | Min 31Hz | Min 31Hz |
| Heating | Min 33Hz | Min 36Hz |

### i. Low Power Supply Voltage Protection

- When the DC voltage supplied to IPM (Power transistor) is reduced to 169 ± 5V (CS-G95KE) or 160 ± 5V (CS-G125KE) the compressor stops and restarts after 3 minutes.
- If within 30 seconds after restarting of compressor, the DC voltage is reduced to 169 ± 5V (CS-G95KE) or 160 ± 5V (CS-G125KE) again, the compressor will stop for 1 minute.

  If this condition repeats for 7 times, all indoor and outdoor relays will be turned off; TIMER LED will blink and F99 is displayed.



### j. High Power Supply Voltage Protection

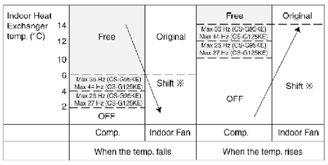
- When the voltage supply (AC) exceeds 295 ± 15V ($T_0$), the air conditioner stops and restarts automatically when the voltage supply (AC) is below ($T_0$ - 5)V. However, waiting for 3 minutes is necessary for re-operation.

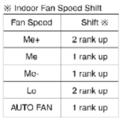
## 2.
## Protection Control For Cooling & Soft Dry

### a. Anti-Freezing Control

- When the temperature of the indoor heat exchanger becomes low, the compressor operating frequency is reduced and stopped when the temperature falls to lower than 2°C continuously for 6 minutes. This is to prevent freezing of indoor heat exchanger. When the temperature rises to 10°C or above, the compressor restarts with 3 minutes. The compressor operating frequency will resume to normal when the temperature reaches 14°C.
- Indoor fan speed will increase when the temperature falls and it will

resume to original speed when the temperature increases to 14°C for 5 minutes continuously.


Indoor Heat Exchanger temp. (°C)
14
12
10
6
4
2
Free
Original
Max 36 Hz (CS-G95KE)
Max 44 Hz (CS-G125KE)
Max 26 Hz (CS-G95KE)
Max 27 Hz (CS-G125KE)
OFF
Shift ※
Free
Original
Max 36 Hz (CS-G95KE)
Max 44 Hz (CS-G125KE)
Max 26 Hz (CS-G95KE)
Max 27 Hz (CS-G125KE)
OFF
Shift ※
Comp.
Indoor Fan
Comp.
Indoor Fan
When the temp. falls
When the temp. rises


※ Indoor Fan Speed Shift

| Fan Speed | Shift ※ |
|---|---|
| Me+ | 2 rank up |
| Me | 1 rank up |
| Me- | 1 rank up |
| Lo | 2 rank up |
| AUTO FAN | 1 rank up |

**Note: The above phenomenon occurs when the fan is running at Me+ or below.**

### b. Anti-Dew Formation Control

**- When the following conditions occurs for 20 minutes continuously, anti-dew formation is controlled:**

**1. Indoor intake air temperature is 24°C or above.**

**2. Outdoor air temperature is less than 30°C.**

**3. Remote control setting temperature is less than 25°C.**

**- During anti-dew formation control, compressor operates at 36 Hz (CS-G95KE) or 44 Hz (CS-G125KE) and airflow direction vane move slightly (as shown in Airflow Direction Control). Indoor fan speed will shift as below:**

| Fan Speed | Shift |
|---|---|
| Hi | 2 rank down |
| Me+ | 3 rank up |
| Me | unchange |
| Me- | unchange |
| Lo | 2 rank up |

**- This control is cancelled immediately when either condition 1-3 as written above is changed, or remote control setting temperature or fan speed is changed.**

### C. Anti-Fog Discharge Control

**- The compressor operating frequency is regulated by operation time to prevent fog discharged from indoor until as shown in the table below.**

|  |  | Compressor operating frequency |  |
|---|---|---|---|
| Operation Time, T (min) | 0 ≦T < 30 | 50Hz | 70Hz |
|  | 30 ≦T < 90 | 46Hz | 64Hz |
|  | T ≧90 | 43Hz | 58Hz |
| Model No. |  | CU-G95KE | CU-G125KE |

**Note:**
- Indoor fan is running at Me- or below.
- After 420 minutes from the start of operation, the operation timer counting is restarted from “0”.

### d. High Pressure Control at Minimum Frequency Control

- When the outdoor air temperature increases to 38.6°C, compressor operating frequency reduces to minimum of 31 Hz. Compressor operating frequency will resume to normal when outdoor air temperature decreases to 37.8°C.

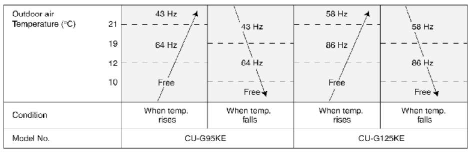
## 3. Protection Control For Heating Operation

### a. Intake Air Temperature Control

- When the intake air temperature is 10°C or above and remote control setting fan speed is less than Me-, the compressor operates maximum at 71 Hz (CU-G95KE) or 90 Hz (CU-G125KE).
- When the intake air temperature is 30°C and above, the compressor operates maximum at 71 Hz (CU-G95KE) or 90 Hz (CU-G125KE).

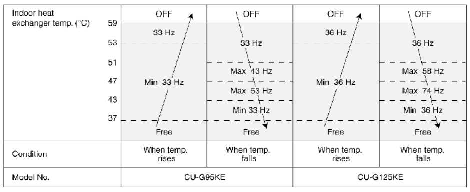
### b. Outdoor Air Temperature Control

- The compressor operating frequency is regulated in accordance to the outdoor air temperature as shown in the diagram below. This control will begin 50 seconds after the compressor starts.


Outdoor air Temperature (°C)
21
19
12
10
43 Hz
64 Hz
Free
43 Hz
64 Hz
Free
58 Hz
86 Hz
Free
58 Hz
86 Hz
Free
Condition
When temp. rises
When temp. falls
When temp. rises
When temp. falls
Model No.
CU-G95KE
CU-G125KE

**C. High Pressure Control**

**- The compressor operating frequency is regulated in accordance to the indoor heat exchanger temperature.**


Indoor heat exchanger temp. (°C)
59
53
51
47
43
37
OFF
33 Hz
Min 33 Hz
Free
OFF
33 Hz
Max 43 Hz
Max 53 Hz
Min 33 Hz
Free
OFF
36 Hz
Min 36 Hz
Free
OFF
36 Hz
Max 58 Hz
Max 74 Hz
Min 36 Hz
Free
Condition
When temp. rises
When temp. falls
When temp. rises
When temp. falls
Model No.
CU-G95KE
CU-G125KE

# 9. Operating Instructions

# 10. Installation Instructions

| Required tools for Installation Works | | | |
|---|---|---|---|
| 1. Phillips screw driver | 5. Spanner | 9. Gas leak detector | 13. Multimeter |
| 2. Level gauge | 6. Pipe cutter | 10. Measuring tape | 14. Torque wrench<br>18 N.m (1.8 kgf.m)<br>42 N.m (4.2 kgf.m)<br>55 N.m (5.5 kgf.m) |
| 3. Electric drill, hole core drill (ø70 mm) | 7. Reamer | 11. Thermometer | 15. Vacuum pump |
| 4. Hexagonal wrench (4 mm) | 8. Knife | 12. Megameter | 16. Gauge manifold |

## 10.1. Safety Precautions

**- Read this following “SAFETY PRECAUTIONS” carefully before installation.**

**- Electrical work must be installed by all licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.**

**- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below.**

**Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indication.**

| | |
|---|---|
| ⚠ **WARNING** | **This indication shows the possibility of causing death or serious injury.** |

| | |
|---|---|
| ⚠ **CAUTION** | **This indication shows the possibility of causing injury or damage to prop** |

**The items to be followed are classified by the symbols:**

| | |
|---|---|
| ⊘ | **Symbol with background white denotes item that is PROHBITED from pip** |

## - Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instruction. Please remind the customer to keep the operating instructions for future reference.

| ⚠ **WARNING** |
|---|
| **1. Engage dealer or specialist for installation. If installation done by the user is defective, it will c water leakage, electrical shock or fire.** |
| **2. Install according to this installation instruction strictly. If installation is defective, it will cause leakage, electrical shock or fire.** |
| **3. Use the attached accessories parts and specified parts for installation. Otherwise, it will cause to fall, water leakage, fire or electrical shock.** |
| **4. Install at a strong and firm location which is able to withstand the set's weight. If the strength enough or installation is not properly done, the set will drop and cause injury.** |
| **5. For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity enough or defect found in electrical work, it will cause electrical shock or fire.** |
| **6. Use the specified cable (1.5 mm2) and connect tightly for indoor/outdoor connection. Connect and clamp the cable so that no external force will be acted on the terminal. If connection or fix not perfect, it will cause heat-up or fire at the connection.** |
| **7. Wire routing must be properly arranged so that control board cover is fixed properly. If control cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electric** |
| **8. When carrying out piping connection, take care not to let air or other substances other than th specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnorm pressure in the refrigerant cycle, explosion and injury.** |

## ⚠ WARNING

9. Do not damage or use unspecified power supply cord. Otherwise, it will cause fire or electrical shock.

10. Do not modify the length of the power supply cord or use of the extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock.

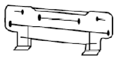
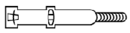
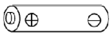
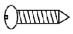
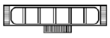
## ⚠ CAUTION

1. Grounding is necessary. It may cause electrical shock if grounding is not perfect.
2. Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
3. Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, v may enter the room and damage the furniture.

## ATTENTION

1. Selection of the installation location.
   Select a installation location which is rigid and strong enough to support or hold the unit, and location for easy maintenance.
2. Power supply connection to the room air conditioner.
   Connect the power supply cord of the room air conditioner to the mains using one of the follo method.
   Power supply point shall be the place where there is ease for access for the power disconnect case of emergency. In some countries, permanent connection of this room air conditioner to t supply is prohibited.
   1. Power supply connection to the receptacle using a power plug. Use an approved 16A power plug with earth pin for the connection receptacle.
   2. Power supply connection to a circuit breaker for the permanent connection. Use an approved 16A circuit breaker for the permanen It must be a double pole switch with a minimum 3 mm contact gap.
3. Do not release refrigerant.
   Do not release refrigerant during piping work for installation, re-installation and during repairi refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
4. Installation work.
   It may need two people to carry out the installation work.
5. Do not install this appliance in a laundry room or other location where water may drip from the etc.

**Attached accessories**

| No. | Accesories part | Qty. | No. | Accessories part | Qty. |
|---|---|---|---|---|---|
| 1 | Installation plate<br> | 1 | 6 | Drain elbow<br> | 1 |
| 2 | Installation plate fixing screw<br> | 6 | 7 | Band<br> | 1 |
| 3 | Remote control<br> | 1 | 8 | Remote Control holder<br> | 1 |
| 4 | Battery<br> | 2 | 9 | Remote Control holder fixing screw<br> | 2 |
| 5 | Air purifying filter<br> | 2 | | | |

**Applicable piping kit**
**CZ-3F5, 7AEN**
**CZ-4F5, 7, 10AN**

## SELECT THE BEST LOCATION

### INDOOR UNIT

- **There should not be any heat source or steam near the unit.**
- **There should not be any obstacles blocking the air circulation.**
- **A place where air circulation in the room is good.**
- **A place where drainage can be easily done.**
- **A place where noise prevention is taken into consideration.**
- **Do not install the unit near the door way.**
- **Ensure the spaces indicated by arrows from the wall, ceiling, or other obstacles.**
- **Indoor unit of this room air conditioner shall be installed on the wall in a height of at least 2.3 m.**

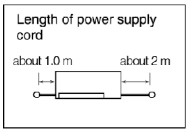
### OUTDOOR UNIT

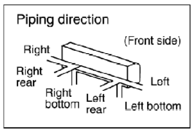
- **If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.**
- **There should not be any animal or plant which could be affected by hot air discharged.**
- **Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.**

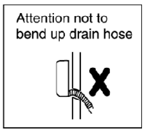
**- Do not place any obstacles which may cause a short circuit of the discharged air.**

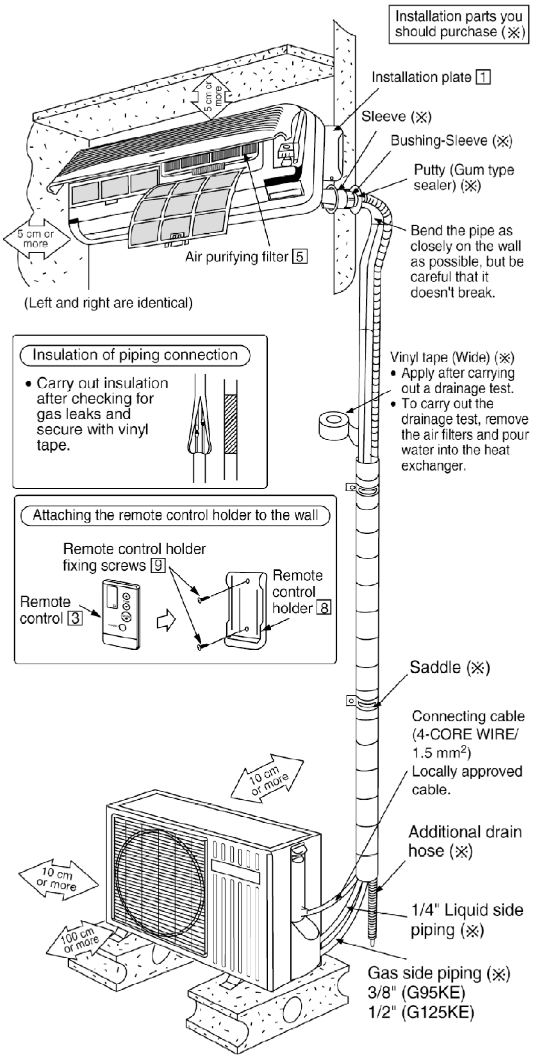
| Model | Piping size | | Common Length (m) | Max. Elevation (m) | Max. Piping Length (m) |
|---|---|---|---|---|---|
| | Gas | Liquid | | | |
| **G95KE** | **3/8”** | **1/4”** | **5** | **5** | **7** |
| **G125KE** | **1/2”** | **1/4”** | **5** | **5** | **7** |

**Indoor/Outdoor unit installation diagram**


Length of power supply cord
about 1.0 m
about 2 m


Piping direction
(Front side)
Right
Right rear
Left
Right bottom
Left rear
Left bottom


Attention not to bend up drain hose
X


Installation parts you should purchase (※)
Installation plate 1
Sleeve (※)
Bushing-Sleeve (※)
Putty (Gum type sealer) (※)
5 cm or more
5 cm or more
Air purifying filter 5
(Left and right are identical)
Insulation of piping connection
Attaching the remote control holder to the wall
Remote control holder fixing screws 9
Remote control 3
Remote control holder 8
Saddle (※)
Connecting cable (4-CORE WIRE/ 1.5 mm²)
Locally approved cable.
10 cm or more
10 cm or more
100 cm or more
Additional drain hose (※)
1/4" Liquid side piping (※)
Gas side piping (※)
3/8" (G95KE)
1/2" (G125KE)

Bend the pipe as closely on the wall as possible, but be careful that it doesn't break.

- Carry out insulation after checking for gas leaks and secure with vinyl tape.

Vinyl tape (Wide) (※)
- Apply after carrying out a drainage test.
- To carry out the drainage test, remove the air filters and pour water into the heat exchanger.

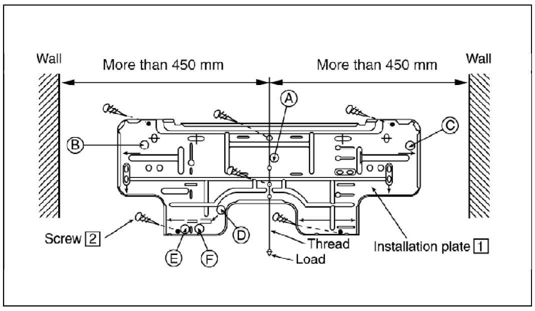
**- This illustration is for explanation purposes only. / The indoor unit will actually face a different way.**

## 10.2. INDOOR UNIT

### 10.2.1. SELECT THE BEST LOCATION / (Refer to "Select the best location" section)

### 10.2.2. HOW TO FIX INSTALLATION PLATE

**The mounting wall is strong and solid enough to prevent it from the vibration.**


Wall
More than 450 mm
More than 450 mm
Wall
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ
Ⓕ
Screw 2
Thread
Load
Installation plate 1

**Ⓐ : Unit centre should be at more than 450 mm at right and left of the wall.**
**The height should be more than 195 mm from the ceiling.**

**Ⓑ : From installation plate end to unit left side end is 50 mm.**

**Ⓒ : From installation plate end to unit right side end is 50 mm.**

**Ⓓ : Connecting cable should be about 750 mm from this line. (Only for left rear piping)**

**Ⓔ : For left side piping, piping connection for liquid should be here.**

**Ⓕ : For left side piping, piping connection for gas should be here.**

**1. Mount the installation plate on the wall with six screws. / (If mounting the unit on the concrete wall consider using anchor bolts.)**

- **Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.**

**2. Drill the piping plate hole with ø70 mm hole-core drill.**

- **Line according to the arrows marked on the lower left and right side of the installation plate. The meeting point of the extended line is the centre of the hole.**

- **Drill the piping hole at either the right or the left and the hole should be slightly slanted to the outdoor side.**

### 10.2.3. TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

**1. Insert the piping sleeve to the hole.**

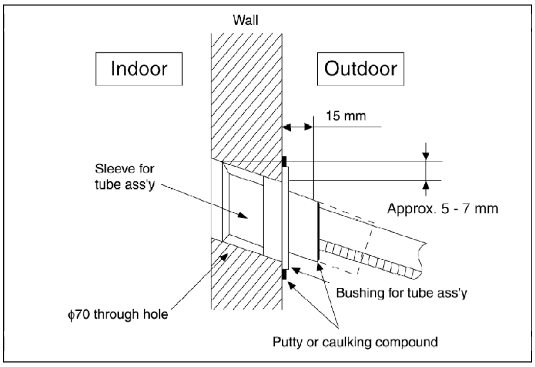
**2. Fix the bushing to the sleeve.**

**3. Cut the sleeve until it extrudes about 15 mm from the wall.**

**Caution**

**When the wall is hollow, please be sure to use the sleeve for tube ass’y to prevent dangers caused by mice biting the indoor/ outdoor connecting cable.**

## 4. Finish by sealing the sleeve with putty or caulking compound at the final stage.


Wall
Indoor
Outdoor
15 mm
Sleeve for tube ass'y
Approx. 5 - 7 mm
Bushing for tube ass'y
ϕ70 through hole
Putty or caulking compound

### 10.2.4. INDOOR UNIT INSTALLATION

## 1. For the right rear piping

Pull out the Indoor piping

⬇

Install the Indoor Unit

⬇

Secure the Indoor Unit

⬇

Insert the connecting cable

## 2. For the right and right bottom piping

Pull out the Indoor piping

⬇

Install the Indoor Unit

⬇

Insert the connecting cable

⬇

Secure the Indoor Unit

## 3. For the embedded piping

**Replace the drain hose**

**Bend the embedded piping**

- Use a spring bender or equivalent to bend the piping so that the piping is not crushed.

**Install the Indoor Unit**

**Cut and flare teh embedded piping**

- When determing the dimension of the piping, slide the unit all the way to the left on the installation plate.
  Refer to the section "Cutting and flaring the piping".

**Pull the connecting cable into Indoor Unit**

- The inside and outside connecting cable can be connected without removing the front grille.

**Connect the piping**

- Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)

**Insulate and finish the piping**

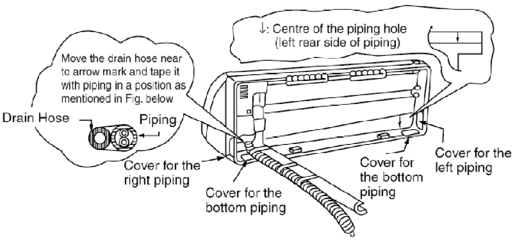
- Please refer to "Piping and finishing" column of outdoor section and "Insulation of piping connections" column as mentioned in Indoor/ Outdoor Unit Installation.

**Install clamping cover of piping**

- Refer to figure on next page.

**Secure the Indoor Unit**

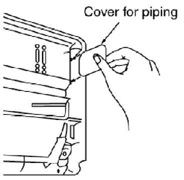
Pull out the piping and drain hose


↓: Centre of the piping hole
(left rear side of piping)
Move the drain hose near to arrow mark and tape it with piping in a position as mentioned in Fig. below
Drain Hose
Piping
Cover for the right piping
Cover for the bottom piping
Cover for the bottom piping
Cover for the left piping

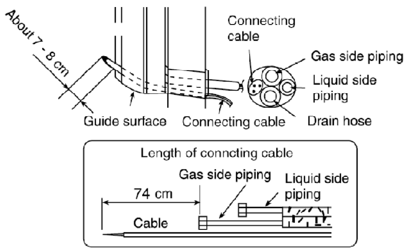
How to keep the cover

In case of the cover is cut, keep the cover at the rear of chassis as shown in the illustration for future reinstallation.

(Left, right and 2 bottom covers for piping)

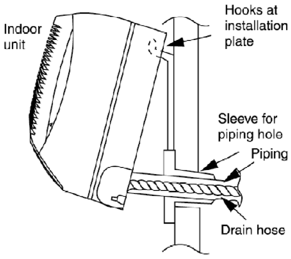

Cover for piping

Insert the connecting cable


About 7 - 8 cm
Connecting cable
Gas side piping
Liquid side piping
Guide surface
Connecting cable
Drain hose
Length of conncting cable
Gas side piping
Liquid side piping
74 cm
Cable

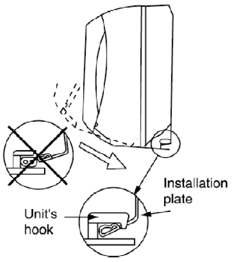
### Install the indoor unit

Hook the indoor unit onto the upper portion of installation plate (Engage the indoor unit with the upper edge of the installation plate). Ensure the hooks are properly seated on the installation plate by moving it in left and right.

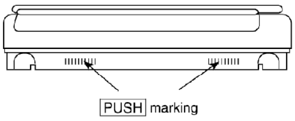

Indoor unit
Hooks at installation plate
Sleeve for piping hole
Piping
Drain hose

### Secure the indoor unit

1. Tape the extra power supply cord in a bundle and keep it behind the chassis.
   - Ensure that the power supply cord is not clamped in between the unit's hook (2 positions) and installation plate
2. Press the lower left and right side of the unit against the installation plate until hooks engages with their slots (sound click).


Installation plate
Unit's hook

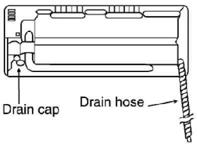
To take out the unit, push the PUSH marking on the unit bottom, and pull it slightly towards you to disengage the hooks from the unit.

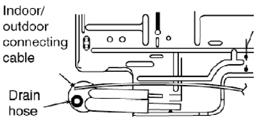

PUSH marking

**(This can be used for left rear piping and left bottom piping also.)**

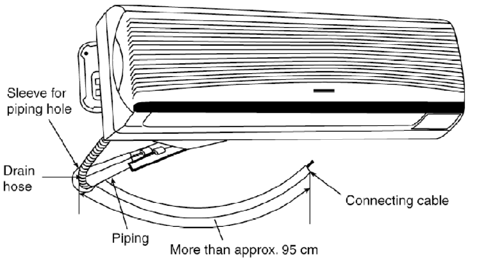
### Exchange the drain hose and the cap

Refer view for left piping installation

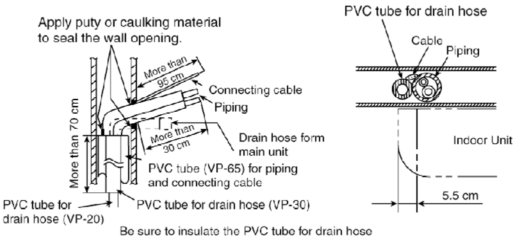

Drain cap
Drain hose


Indoor/ outdoor connecting cable
Drain hose

Adjust the piping slightly downwards

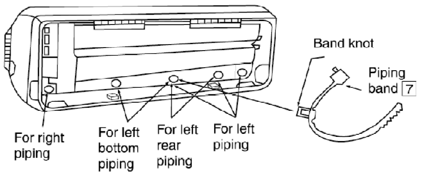

Sleeve for piping hole
Drain hose
Connecting cable
Piping
More than approx. 95 cm

- How to pull the piping and drain hose out, in case of the embedded piping.

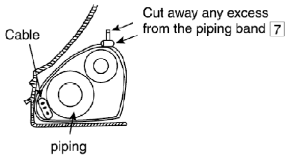

Apply puty or caulking material to seal the wall opening.
More than 95 cm
Connecting cable
Piping
More than 70 cm
More than 30 cm
Drain hose form main unit
PVC tube (VP-65) for piping and connecting cable
PVC tube for drain hose (VP-20)
PVC tube for drain hose (VP-30)
Be sure to insulate the PVC tube for drain hose
PVC tube for drain hose
Cable
Piping
Indoor Unit
5.5 cm

### ATTACHMENT OF THE PIPING BAND

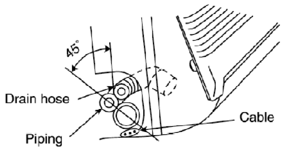
- For the right rear piping, it is not necessary to use piping band. The piping band can be attached when the extension flare pipe is used or when doing the piping work (under condition as shown in the diagram below) on the floor.
- The location to attach the piping band change according to the direction of the piping. Press the band knot to the hole in order to fix the band as shown in diagram below.


Band knot
Piping band 7
For right piping
For left bottom piping
For left rear piping
For left piping

- Tighten the band so that the cable and the piping are secure. Be sure to cut any excess from the piping band (failure to cut away the excess piping band may produce abnormal noise during operation of condensation).


Cable
Cut away any excess from the piping band 7
piping

- In case of left piping how to insert the connecting cable and drain hose.


45°
Drain hose
Piping
Cable

(For the right piping, follow the same procedure)

## 10.2.5. CONNECT THE CABLE TO THE INDOOR UNIT

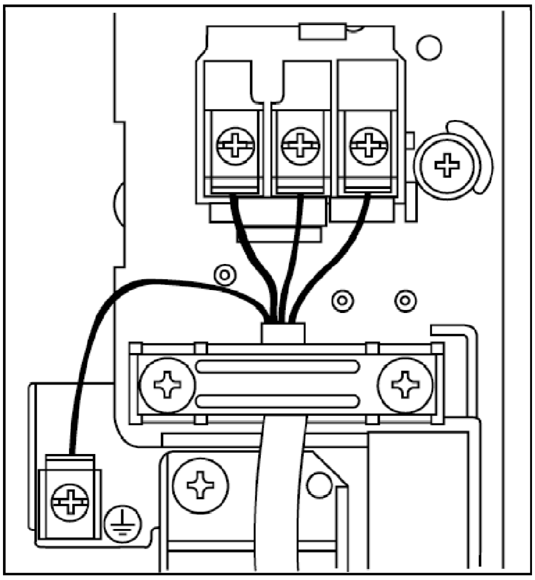
1. The inside and outside connecting cable can be connected without removing the front grille.
2. Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 × 1.5 $mm_2$ flexible cord, type designation H05 RN-F or heavier cord.

   - Ensure the color of wires of outdoor unit and the terminal Nos. are the same to the Indoor’s respectively.
   - Earth lead wire shall be longer than the other lead wires as

shown in the figure for the electrical safety in case of the slipping out of the cord from the anchorage. /

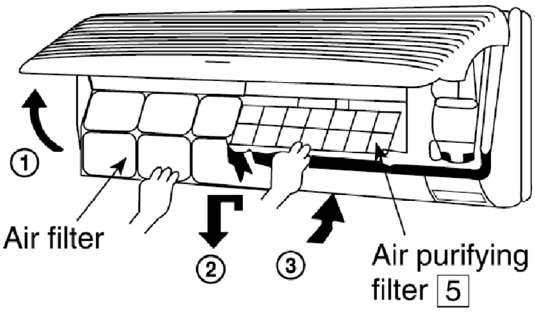
| | | | | |
|---|---|---|---|---|
| Terminals on the indoor unit | 1 | 2 | 3 | ⏚ |
| Color of wires | ░ | ▒ | ▓ | █ |
| Terminals on the outdoor unit | 1 | 2 | 3 | ⏚ |

- Secure the cable onto the control board with the holder (clamper).



## INSTALLATION OF AIR PURIFYING FILTERS

1. Open the front panel.
2. Remove the air filters.
3. Hold the purifying filters by their tabs and install as shown in the illustration at below.

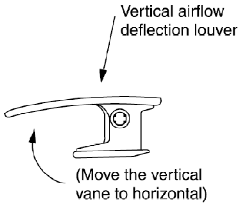


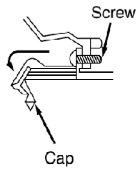
## HOW TO TAKE OUT FRONT GRILLE

**Please follow below steps to take out front grille if necessary such as when servicing.**

1. **Set the vertical airflow direction louver to the horizontal position.**
2. **Slide down the two caps on the front grille as shown in the illustration below, and then remove the two mounting screws.**
3. **Pull the lower section of the front grille towards you to remove the front grille.**

**When reinstalling the front grille, first set the vertical airflow direction louver to the horizontal position and then carry out above steps 2 - 3 in the reverse order.**


Vertical airflow deflection louver
(Move the vertical vane to horizontal)

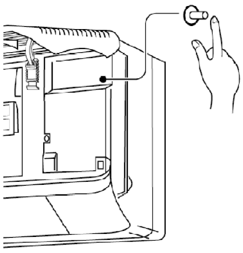


## AUTO SWITCH OPERATION

**The below operations will be performed by pressing the "AUTO" switch.**

1. **AUTO OPERATION MODE**
   **The Auto operation will be activated immediately once the Auto Switch is pressed.**
2. **TEST RUN OPERATION (FOR PUMP DOWN/SERVICING PURPOSE)**
   **The Test Run operation will be activated if the Auto Switch is pressed continuously for more than 5 sec. to below 10 sec.. A "beep" sound will occur at the fifth sec., in order to identify the starting of Test Run operation**
3. **REMOTE CONTROLLER RECEIVING SOUND ON/OFF**

**The ON/OFF of Remote Controller receiving sound can be change over by pressing the "AUTO" Switch continuously for 10 sec. and above. A "beep", "beep" sound will occur at the tenth sec., in order to indicate the "ON/OFF" change over of remote control receiving sound.**



## 10.3. OUTDOOR UNIT

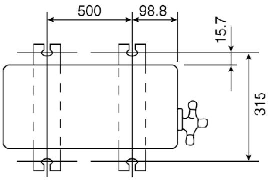
### 10.3.1. SELECT THE BEST LOCATION / (Refer to "Select the best location" section)

### 10.3.2. INSTALL THE OUTDOOR UNIT

**- After selecting the best location, start installation according to Indoor/Outdoor Unit Installation Diagram.**

**1. Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut. (ø10 mm).**

**2. When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt or nails.**



### 10.3.3. CONNECTING THE PIPING

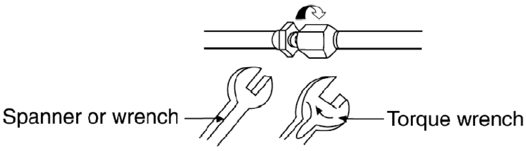
**Connecting the Piping to Indoor Unit**

**Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe. (In case of using piping)**

**Connect the piping**

**- Align the center of piping and sufficiently tighten the flare nut with fingers.**

**- Further tighten the flare nut with torque wrench in specified torque as stated in the table.**

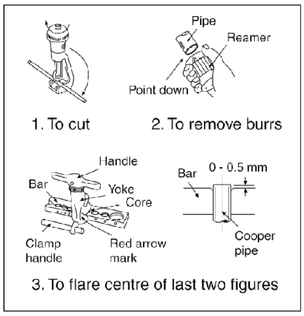

Spanner or wrench
Torque wrench

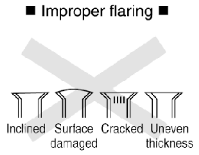
| MODEL | Piping size (Torque) | |
|---|---|---|
| | **Gas** | **Liquid** |
| **G95KE** | **3/8” (42 N.m)** | **1/4” (18 N.m)** |
| **G125KE** | **1/2” (55 N.m)** | **1/4” (18 N.m)** |

**Connecting the Piping to Outdoor Unit**
**Decide piping length and then cut by using pipe cutter. Remove burrs from cut edge. Make flare after inserting the flare nut (located at valve) onto the copper pipe.**
**Align center of piping to valves and then tighten with torque wrench to the specified torque as stated in the table.**

**CUTTING AND FLARING THE PIPING**

1. **Please cut using pipe cutter and then remove the burrs.**
2. **Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused.**
   **Turn the piping and down to avoid the metal powder entering the pipe.**
3. **Please make flare after inserting the flare nut onto the copper pipes.**

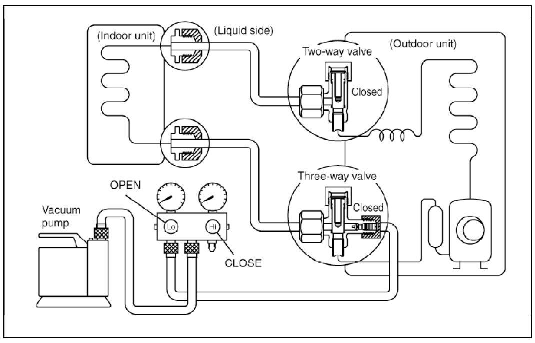

Pipe
Reamer
Point down
1. To cut
2. To remove burrs
Handle
Bar
Yoke
Core
Clamp handle
Red arrow mark
Bar
0 - 0.5 mm
Cooper pipe
3. To flare centre of last two figures


■ Improper flaring ■
Inclined
Surface damaged
Cracked
Uneven thickness

When properly flared, the internal surface of the flare will evenly shine and be of even thickness. Since the flare part comes into contact with the connectors, carefully check the flare finish.

## 10.3.4. EVACUATION OF THE EQUIPMENT

**WHEN INSTALLING AND AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.**



1. **Connect a charging hose with a push pin to the Low and High side of a charging set and the service port of the 3-way valve.**

   **- Be sure to connect the end of the charging hose with the push pin to the service port.**

2. **Connect the center hose of the charging set to a vacuum pump.**
3. **Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.**
4. **Close the valve of both the Low and High sides of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.**
   **Note: BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.**
5. **Disconnect the charging hose from the vacuum pump and from the service port of the 3-way valve.**
6. **Tighten the service port caps of the 3-way valve at torque of 18 N.m with a torque wrench.**
7. **Remove the valve caps of both of the 2-way valve and 3-way valve. Position both of the valves to “OPEN” using a hexagonal wrench (4 mm).**
8. **Mount valve caps onto the 2-way valve and the 3-way valve.**

   **- Be sure to check for gas leakage.**

**CAUTION**

- If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in step 3 above take the following measure:
- If the leak stops when the piping connections are tightened further, continue working from step 3.
- If the leak does not stop when the connections are retightened, repair the location of leak.
- Do not release refrigerant during piping work for installation and re-installation. Take care of the liquid refrigerant, it may cause frostbite.

### 10.3.5. CONNECT THE CABLE TO THE OUTDOOR UNIT

1. Remove the control board cover from the unit by loosening the screw.
2. Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 4 × 1.5 $\text{mm}^2$ flexible cord, type designation H05 RN-F or heavier cord.

| | | | | |
|---|---|---|---|---|
| Terminals on the indoor unit | 1 | 2 | 3 | ⏚ |
| Color of wires | ░ | ▒ | ▓ | █ |
| Terminals on the outdoor unit | 1 | 2 | 3 | ⏚ |

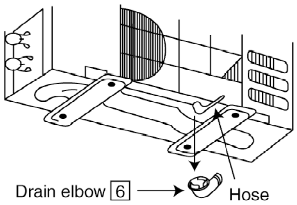
3. Secure the cable onto the control board with the holder (clamper).
4. Attach the control board cover back to the original position with the screw.

### 10.3.6. PIPE INSULATION

1. Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.
2. If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.

## DISPOSAL OF OUTDOOR UNIT DRAIN WATER

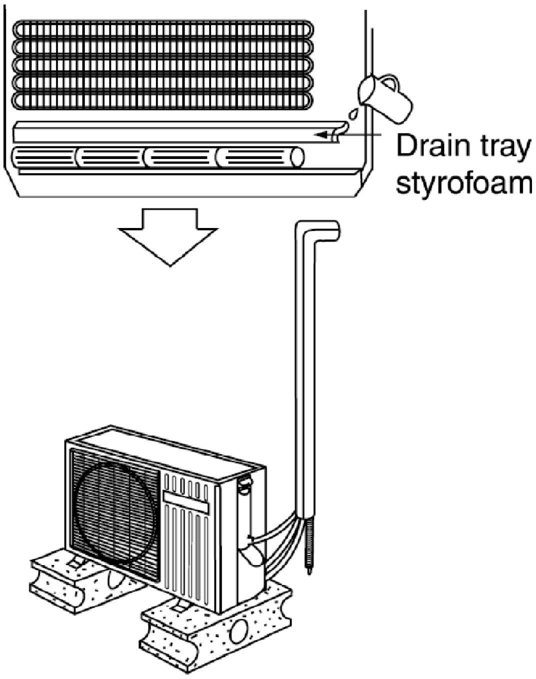
- **If a drain elbow is used, the unit should be placed on a stand which is taller than 3 cm.**
- **If the unit is used in an area where temperature falls below 0°C for 2 or 3 days in succession, it is recommended not to use a drain elbow, for the drain water freezes and the fan will not rotate.**



Install the hose at an angle so that the water smoothly flows out.

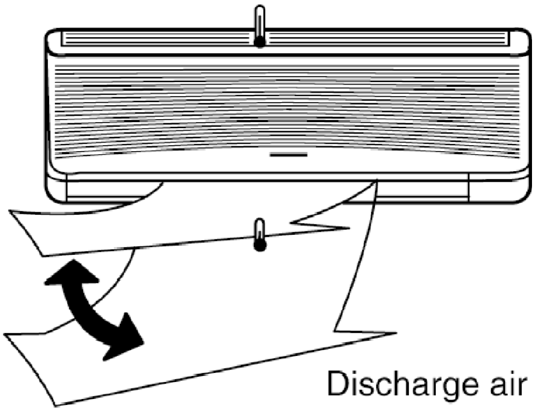
## CHECK THE DRAINAGE

- **Open front panel and remove air filters. / (Drainage checking can be carried out without removing the front grille.)**
- **Pour a glass of water into the drain tray-styrofoam.**
- **Ensure that water flows out from drain hose of the indoor unit.**



## EVALUATION OF THE PERFORMANCE

- Operate the unit at cooling operation mode for fifteen minutes or more.
- Measure the temperature of the intake and discharge air.
- Ensure the difference between the intake temperature and the discharge is more than 8°C.



## CHECK ITEMS

☐ Is there any gas leakage at flare nut connections?

☐ Has the heat insulation been carried out at flare nut connection?

☐ Is the connecting cable being fixed to terminal board firmly?

☐ Is the connecting cable being clamped firmly?

☐ Is the drainage OK?
(Refer to “Check the drainage” section)

☐ Is the earth wire connection properly done?

☐ Is the indoor unit properly hooked to the installation plate?

☐ Is the power supply voltage complied with rated value?

☐ Is there any abnormal sound?

☐ **Is the cooling operation normal?**

☐ **Is the thermostat operation normal?**

☐ **Is the remote control’s LCD operation normal?**

☐ **Is the air purifying filter installed?**

# 11. Servicing Information

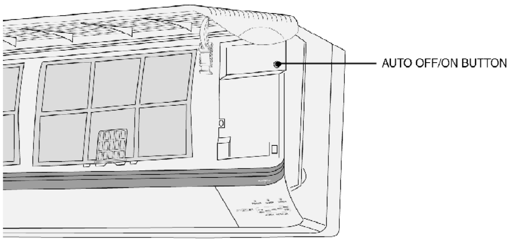
## 11.1. Troubleshooting

**1. Rated Frequency Operation**

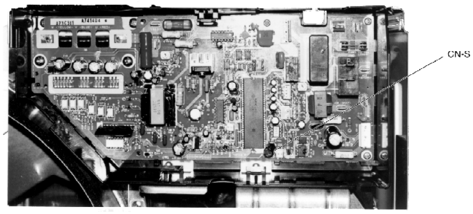
**During troubleshooting and servicing, rated compressor operating frequency must be obtained in order to check the specification and technical data. Below are the methods used to obtain rated compressor operating specification.**

**(a) Cooling**

**(i) Press the Auto button continuously for 5 seconds or less than 8 seconds, the air condition**
**operation at Cooling rated frequency. (“beep” will be heard at the 5th second.)**



**(ii) Short the service terminal (CN-S) of the outdoor printed circuit board. The air conditioner**
**operation at Cooling rated frequency.**



**(b) Heating**

**Press the Auto button continuously for 8 seconds or less than 11 seconds, the air conditioner**

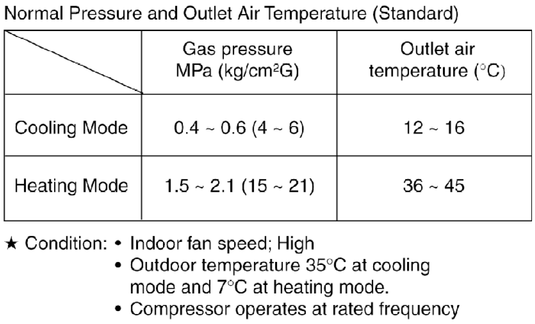
**starts operation at Heating rated frequency. ("beep" "beep" will be heard at the 8th second.)**

## 2. Troubleshooting Air Conditioner

**Refrigeration cycle system**

**In order to diagnose malfunctions, make sure that there are no electrical problems before inspecting the refrigeration cycle. Such problems include insufficient insulation, problem with the power source, malfunction of a compressor and a fan.**

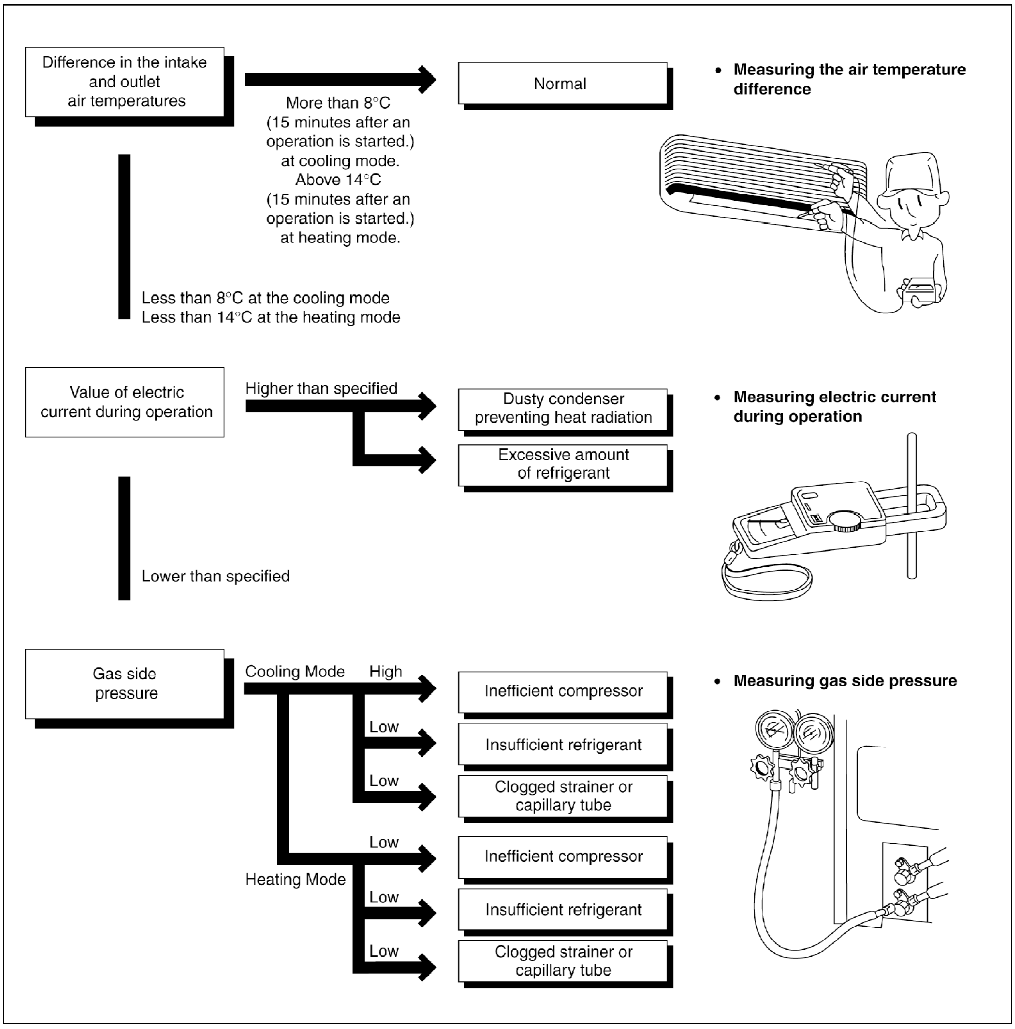
**The normal outlet air temperature and pressure of the refrigeration cycle depends on various conditions, the standard values for them are shown in the table to the right.**



Normal Pressure and Outlet Air Temperature (Standard)

| | Gas pressure MPa (kg/cm²G) | Outlet air temperature (°C) |
|---|---|---|
| Cooling Mode | 0.4 ~ 0.6 (4 ~ 6) | 12 ~ 16 |
| Heating Mode | 1.5 ~ 2.1 (15 ~ 21) | 36 ~ 45 |

★ Condition:
- Indoor fan speed; High
- Outdoor temperature 35°C at cooling mode and 7°C at heating mode.
- Compressor operates at rated frequency


Difference in the intake and outlet air temperatures
More than 8°C (15 minutes after an operation is started.) at cooling mode. Above 14°C (15 minutes after an operation is started.) at heating mode.
Normal
Measuring the air temperature difference
Less than 8°C at the cooling mode
Less than 14°C at the heating mode
Value of electric current during operation
Higher than specified
Dusty condenser preventing heat radiation
Excessive amount of refrigerant
Measuring electric current during operation
Lower than specified
Gas side pressure
Cooling Mode
High
Inefficient compressor
Low
Insufficient refrigerant
Low
Clogged strainer or capillary tube
Measuring gas side pressure
Heating Mode
Low
Inefficient compressor
Low
Insufficient refrigerant
Low
Clogged strainer or capillary tube

## 1. Relationship between the condition of the air conditioner and pressure and electric current

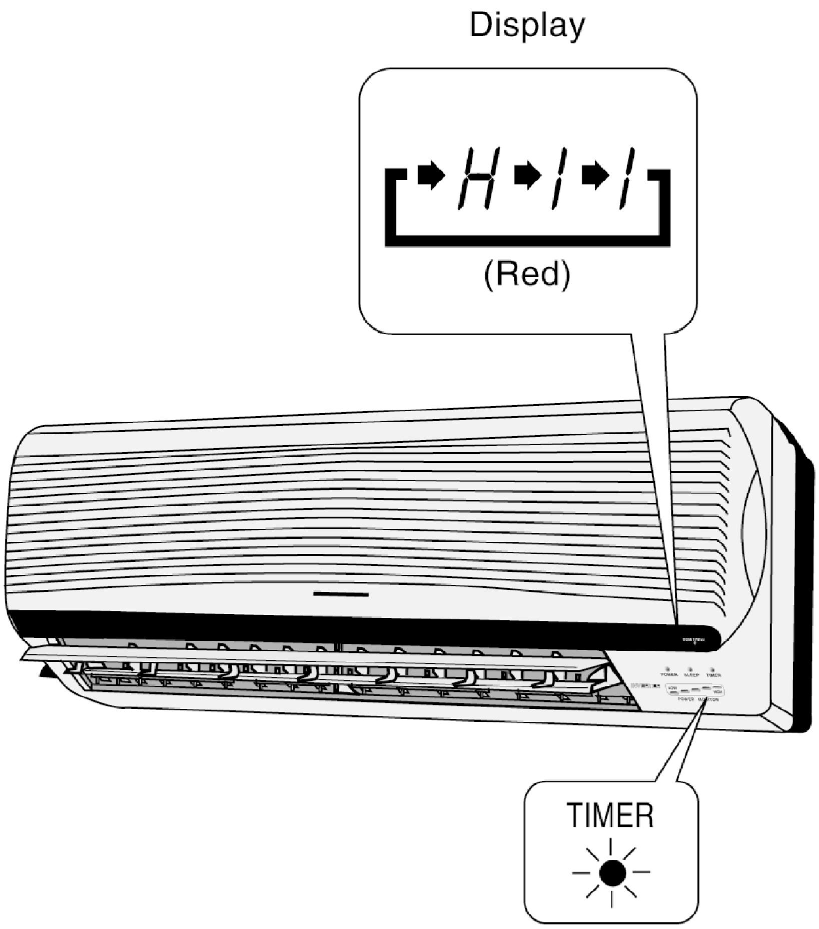
| Condition of the air conditoner | Cooling Mode | | | Heating Mode | | |
|---|---|---|---|---|---|---|
| | Low Pressure | High Pressure | Electric current during operation | Low Pressure | High Pressure | El cu du op |
| **Insufficient refrigerant (gas leakage)** | ↘ | ↘ | ↘ | ↘ | ↘ | |
| **Clogged capillary tube or Strainer** | ↘ | ↘ | ↘ | ↗ | ↗ | |
| **Short circuit in the indoor unit** | ↘ | ↘ | ↘ | ↗ | ↗ | |
| **Heat radiation deficiency of the outdoor unit** | ↗ | ↗ | ↗ | ↘ | ↘ | |
| **Inefficient compression** | ↗ | ↘ | ↘ | ↗ | ↘ | |

**- Carry on the measurements of pressure, electric current, and temperature fifteen minutes after an operation is started.**

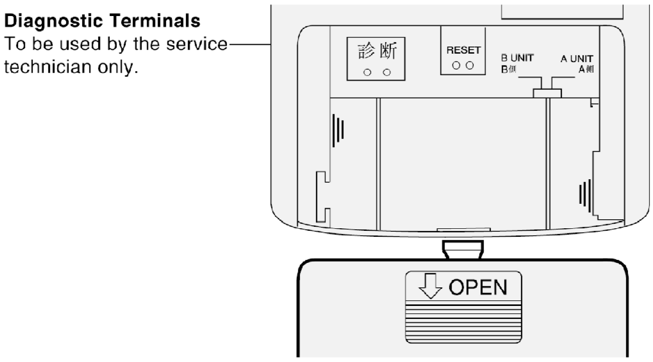
## 11.2. Self Diagnosis Display

**The diagnostic display can be seen on the receiver of the Front Grille.**

**- When an abnormality occurs, the unit automatically stops, and the TIMER LED blinks to indicate a malfunction. At the same time, the type of abnormality will be indicated on the receiver as shown in the diagram below. Providing this information reduces the time spent in diagnosing procedures.**


Display
H 1 1
(Red)
TIMER

- The diagnostic display disappears when the power is turned off.
- When power is re-supplied and the Diagnostic Terminals the Remote Control is shorted, the type of the previous abnormality and the protection control works will be displayed and repeated on the receiver for 4 times.


Diagnostic Terminals
To be used by the service technician only.
診断
RESET
B UNIT
B側
A UNIT
A側
OPEN

- By starting forced cooling operation using AUTO button (press AUTO button for 5 seconds or < 8 seconds) and short the

**Diagnostic Terminals at the remote control, the previous abnormalities are deleted.**

**- Depending on the type of abnormality, you may be able to override the abnormality and use a temporary operation (for abnormalities indicated by O mark in the table).**
**Use the remote control to select cooling or heating operation mode and press OFF/ON button. At this moment, four short beeps; "beep. beep. beep. beep" will sound and TIMER LED will blink.**

| Diagnosis display | Abnormality / Protection control | Abnormality Judgement | Temporary operation | Primary location |
|---|---|---|---|---|
| H11 | Indoor / outdoor abnormal communication | 1 min after starting operation | - | -Internal / external cable co<br>-Indoor / Outdoor PCB |
| H14 | Indoor intake air temperature sensor abnormality | | - | -Intake air temperature sens<br>or disconnected) ※1 |
| H15 | Outdoor compressor temperature sensor abnormality | | - | -Compressor temperature s<br>(defective or disconnected) |
| H16 | Outdoor Current Transformer open circuit | | - | -Outdoor PCB<br>-IPM (Power transistor) mo |
| H19 | Indoor fan motor merchanism lock | | - | -Indoor PCB<br>-Fan motor |
| H23 | Indoor heat exchanger temperature sensor abnormality | | O<br>(Cooling only) | -Heat exchanger temperatu<br>(defective or disconnected) |
| H27 | Outdoor air temperature sensor abnormality | | O | -Outdoor temperature sens<br>or disconnected) |
| H28 | Outdoor heat exchanger temperature sensor abnormality | | O | -Outdoor heat exchanger te<br>sensor (defective or discon |
| H98 | Indoor high pressure protection | | - | -Air filter dirty<br>-Air circulation short circuit |
| H99 | Indoor heat exchanger anti-freezing protection | | - | -Insufficient refrigerant<br>-Air filter dirty |
| F11 | Cooling / Heating cycle changeover abnormality | 4 times occurance within 40 minutes | - | -4-way valve<br>-V-coil |

| | | | | |
|---|---|---|---|---|
| **F91** | **Refrigeration cycle abnormality** | **2 times occurance within 30 minutes** | **-** | **-No refrigerant**<br>**(3-way valve is closed)** |
| **F93** | **Outdoor compressor abnormal revolution** | **4 times occurance within 30 minutes** | **-** | **-Compressor**<br>**-Outdoor PCB** |
| **F96** | **IPM (power transistor) overheating protection** | **4 times occurance within 40 minutes** | **-** | **-Excess refrigerant**<br>**-Improper heat radiation**<br>**-IPM (Power transistor)** |
| **F97** | **Outdoor compressor overheating protection** | **4 times occurance within 20 minutes** | **-** | **-Insufficient refrigerant**<br>**-Compressor** |
| **F98** | **Total running current protection** | **3 times occurance within 30 minutes** | **-** | **-Excess refrigerant**<br>**-Improper heat radiation** |
| **F99** | **Outdoor Direct Current (DC) peak detection** | **7 times occurance continuously** | **-** | **-Outdoor PCB**<br>**-IPM (Power transistor)**<br>**-Compressor** |

**※1**

**This diagnosis mode can be omitted by the following procedure.**

**-Press the AUTO button (at indoor unit) continuously for 16 seconds or < 21 seconds, “beep”, “beep”, “beep”, “beep” will be heard at second. “E1” will be displayed at the indoor unit. This is to indicate H14 abnormality detection is enable.**

**-Press the Auto switch once. A “beep” sound will be heard. “E2” will be displayed at the indoor unit. This is to indicate H14 abnormali detection is disabled.**

**(a) Current Transformer Defective**

**When the Current Transformer (CT) is an open circuit, total running current is less than 1.88A and the indicated frequency is 53 Hz (CU-G95KE) or 74 Hz (CU-G125KE) or above. If this condition continues for 20 seconds, the abnormality signal is sent from outdoor to indoor after 3 minutes of operation and [H16] is displayed.**

**(b) 4 Way Valve Defective**

**(i) Heating Operation (except Deice)**

**When the indoor heat exchanger temperature is lower than 5°C after 4 minutes of operation, the operation stops and restarts after 3 minutes. If this phenomenon occurs for 4 times within 40 minutes, [F11] is displayed.**

**(ii) Cooling Operation**

**When the indoor heat exchanger temperature is higher than 45°C after 4 minutes of operation,**

the operation stops and restarts after 3 minutes. If this phenomenon occurs for 4 times within 40 minutes, [F11] is displayed.

The abnormality is not judged in the following conditions:

- deice operation
- 2 minutes after deice operation
- hot start
- 2 minutes after hot start
- 3 minutes after heating and cooling/soft dry mode changeover

## 11.3. Remote Control

### a. Remote Control Reset

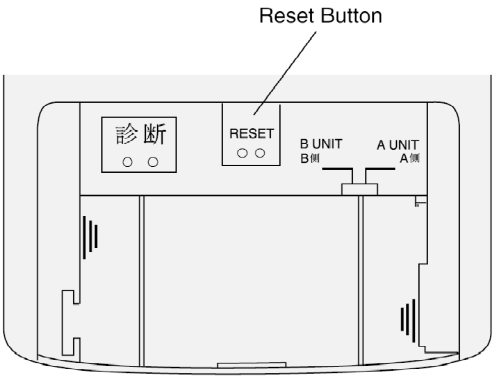
When the batteries are inserted for the first time, or the batteries are replaced, all the indications will blink and the remote control might not work.

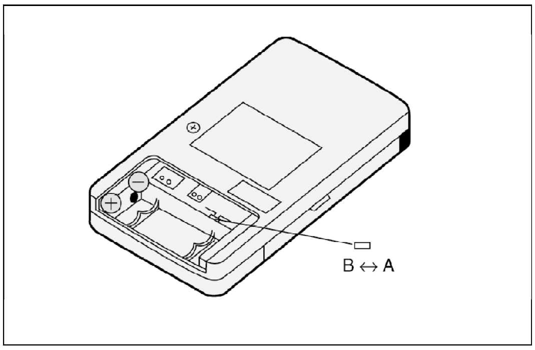
If this happens, remove the back cover of the remote control and you will find a resetting terminal, and by shorting it with a minus screwdriver, it will return to normal.

### b. Changing the wireless remote control transmission / code

When two indoor units are installed in the same room, in order to prevent operating errors caused by using two remote controls, set up the remote control [B ← → A] switch.

The unit is set to A when it is shipped.





**By adding a jumper wire to the remote control side, it is possible to select 4 transmission codes including one at time of delivery condition (1).**

| | Remote Control | | Indoor unit | Note |
|---|---|---|---|---|
| | Switch SW B ← → A | J - B | Segment Display | |
| 1 | A | —— | A | At product deliv |
| 2 | B | —— | B | |
| 3 | A | Jumper wire | C | |
| 4 | B | Jumper wire | D | |

**Procedure:-**

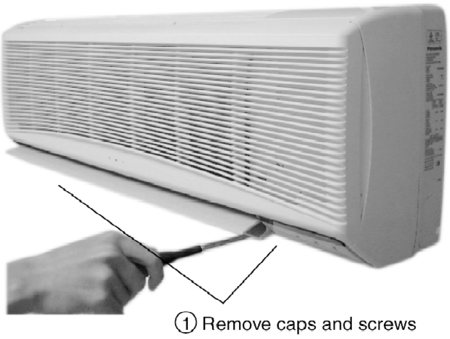
- **Press the Auto button (at indoor unit) continuously for 11 seconds or < 16 seconds; “beep” “beep” “beep” will be heard and the current transmission code is displayed (A or b or c or d). To switch to condition (2) transmission code as above, switch over the Remote Control A ← → B switch to B; and press any button at the remote control to set the transmission code.**
- **To switch to condition (3) and (4) transmission code, follow the same procedure as mentioned above.**

## 11.4. Disassembly of Parts

### a. Indoor Control Board Removal Procedure

### 1. Remove the Front Grille

Fig. 1

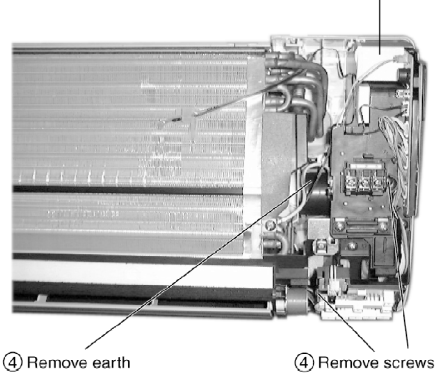


① Remove caps and screws

## 2. Remove the Indoor Control Board

Fig. 3

④ Disconnect all connectors



④ Remove earth wire screw

④ Remove screws

Note: Remove the indoor and outdoor connecting wires from terminal $\boxed{1}$, $\boxed{2}$, $\boxed{3}$ and ⏚.

Fig. 2

② Remove the Front Grille

③ Press the 2 tabs

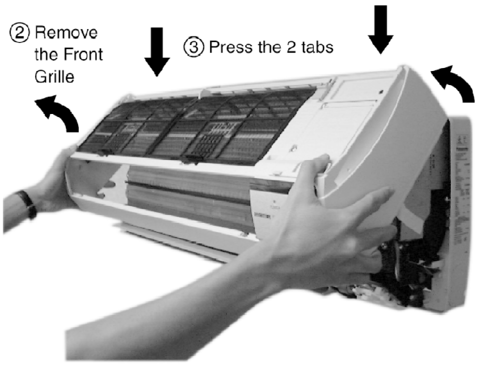
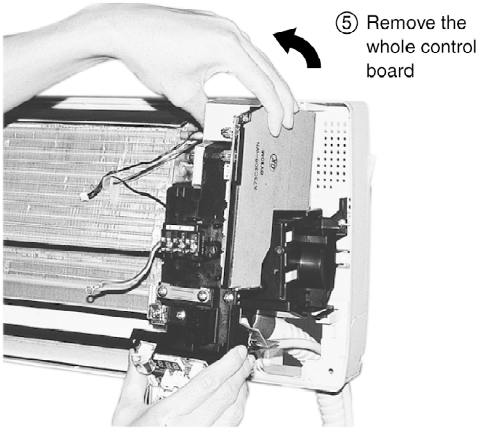


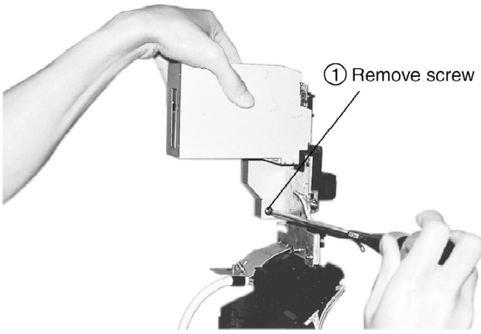
Fig. 4



⑤ Remove the whole control board

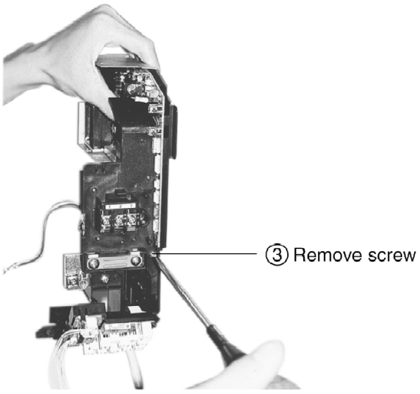
## a. Removal of Electronic Controller Procedure

Fig. 5



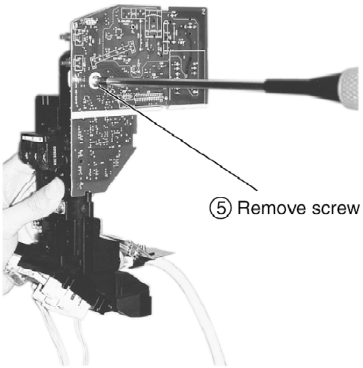
① Remove screw

Fig. 7



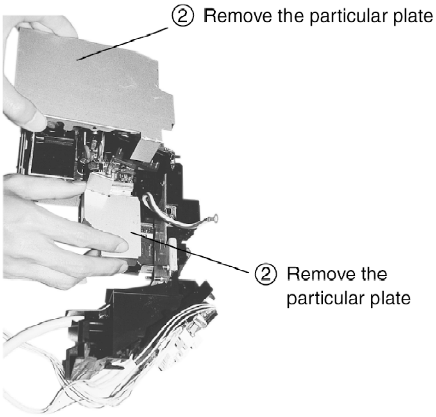
③ Remove screw

Fig. 9



⑤ Remove screw

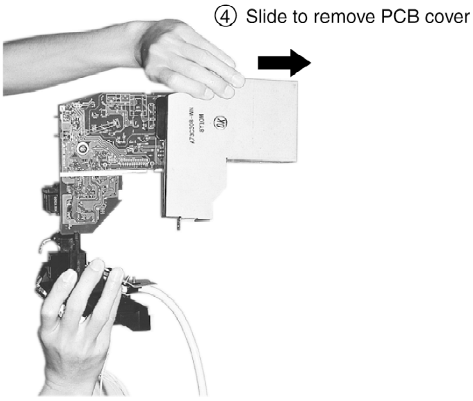
Fig. 6



② Remove the particular plate

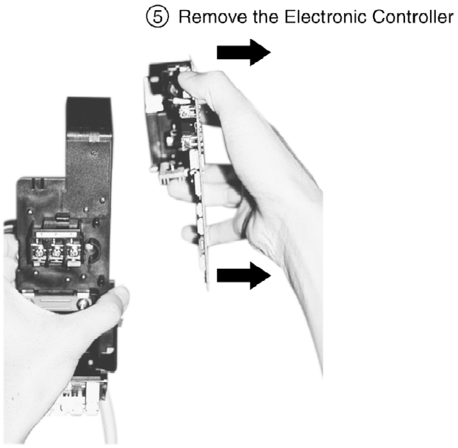
② Remove the particular plate

Fig. 8



④ Slide to remove PCB cover

Fig. 10


⑤ Remove the Electronic Controller

## c. Indoor Fan Motor Removal Procedure

Fig. 11

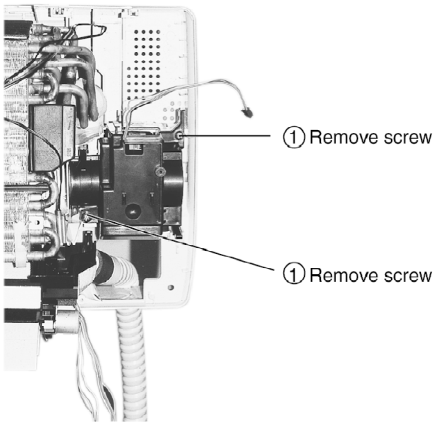

① Remove screw
① Remove screw

Fig. 13

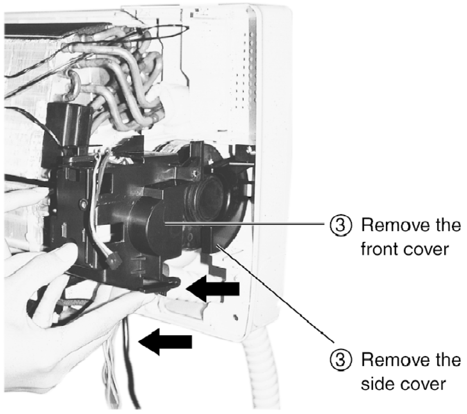

③ Remove the front cover
③ Remove the side cover

Fig. 15

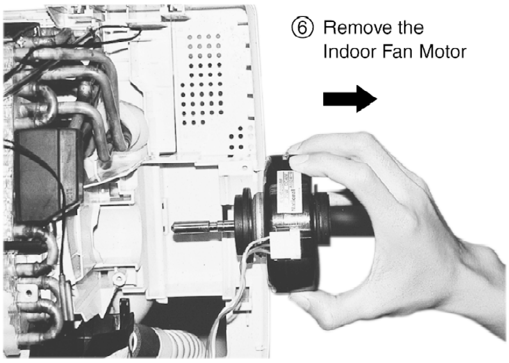

⑥ Remove the Indoor Fan Motor

**Fig. 12**

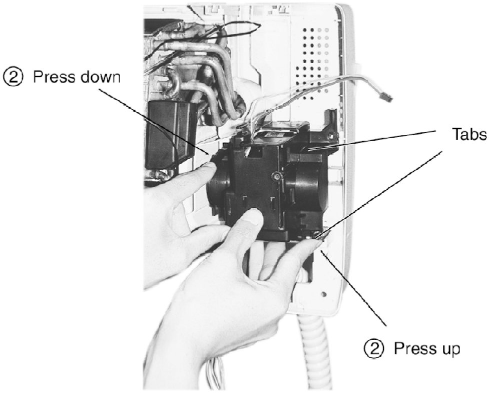
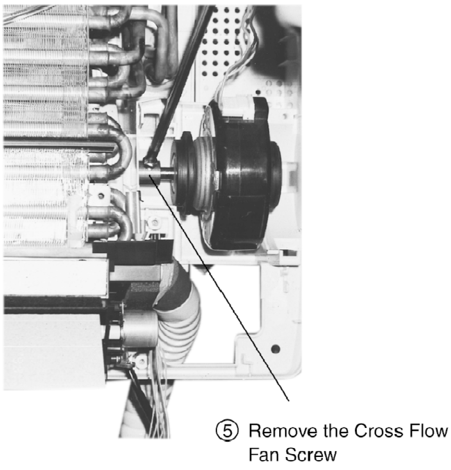

② Press down
Tabs
② Press up

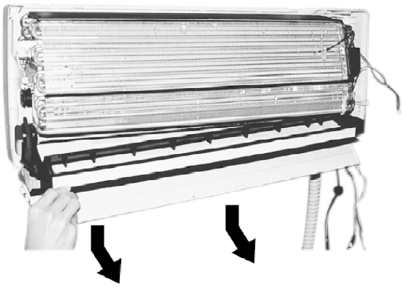
**Fig. 14**


⑤ Remove the Cross Flow Fan Screw

**d. Cross Flow Fan Removal Procedure**

## 1. Remove Discharge Grille

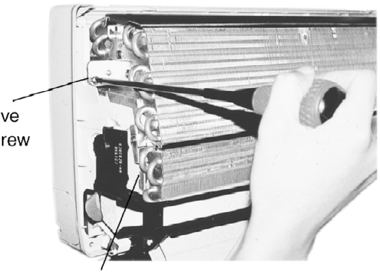
**Fig. 16**



① Remove the Discharge Grille

## 1. Remove Cross Flow Fan

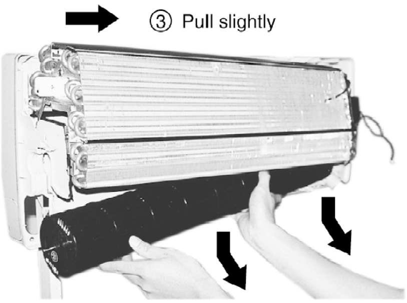
**Fig. 17**



① Remove the screw

② Release the slot of indoor heat exchanger from the chassis

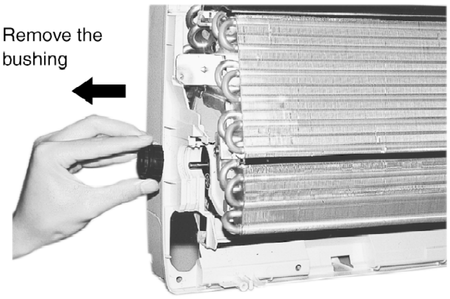
**Fig. 19**



③ Pull slightly

④ Remove the Cross Flow Fan

**Fig. 18**

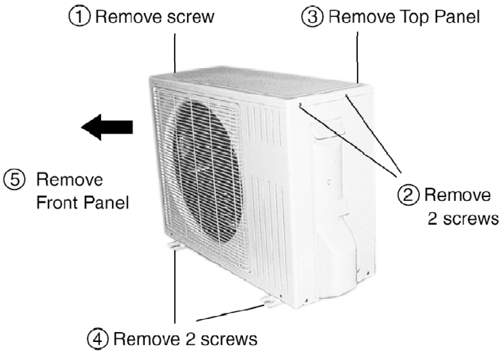


② Remove the bushing

**d. Outdoor Electronic Controller Removal Procedure**

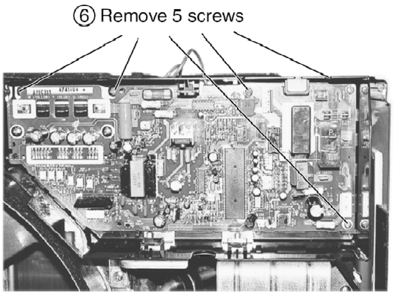
## 1. Remove the top pane and front panel

**Fig. 20**


① Remove screw
③ Remove Top Panel
⑤ Remove Front Panel
② Remove 2 screws
④ Remove 2 screws

## 2. Remove the Outdoor Electronic Controller

**Fig. 22**


⑥ Remove 5 screws

⚠ **Caution! When handling electronic controller, be careful of electrostatic discharge.**

⚠ **WARNING**

- **Be save to return the wiring to its original position**
- **There are many high voltage components within the heat sink cover so never touch the interior during operation. Wait at least two minutes after power has been turned off.**

**Fig. 21**

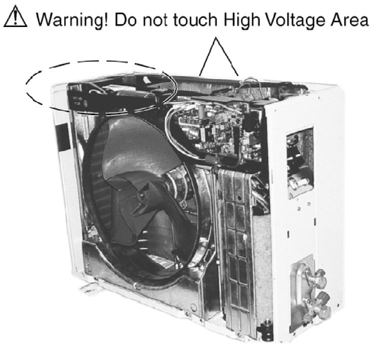
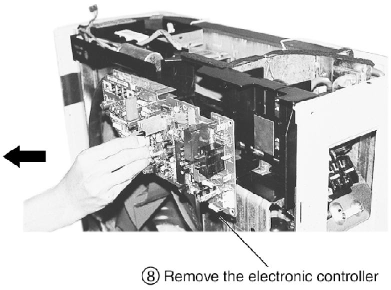

⚠ Warning! Do not touch High Voltage Area

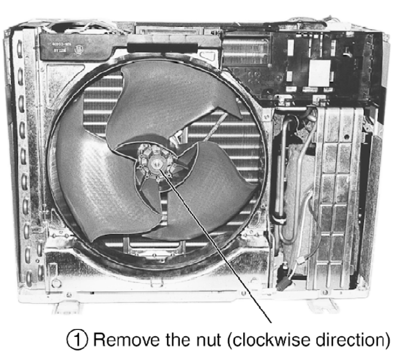
Fig. 23


⑧ Remove the electronic controller

**Note: Use magnetic type of screw driver to avoid dropping of the screws.**

### f. Propeller Fan Removal Procedure

Fig. 24


① Remove the nut (clockwise direction)

### f. Outdoor Fan Motor Removal Procedure

Fig. 26

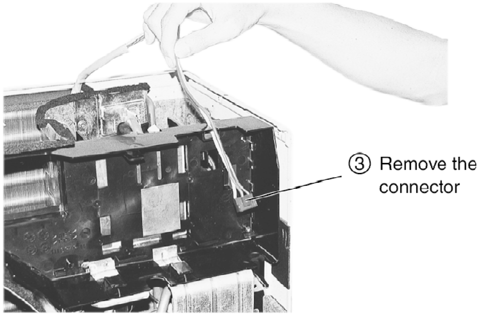

③ Remove the connector

Fig. 26

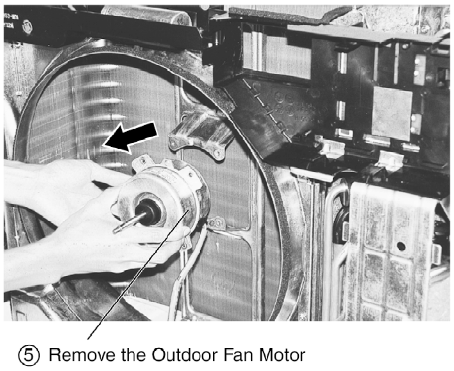

⑤ Remove the Outdoor Fan Motor

Fig. 25

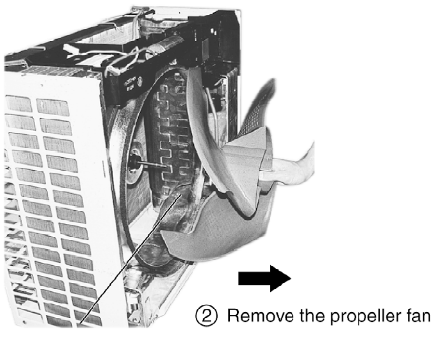
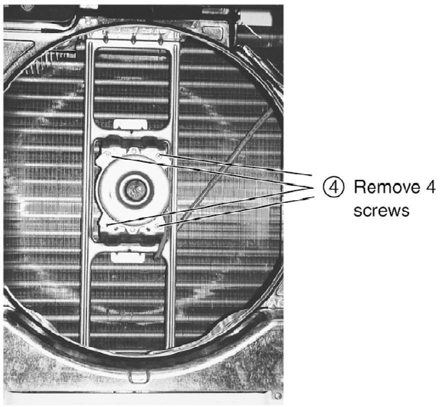

② Remove the propeller fan

Fig. 27

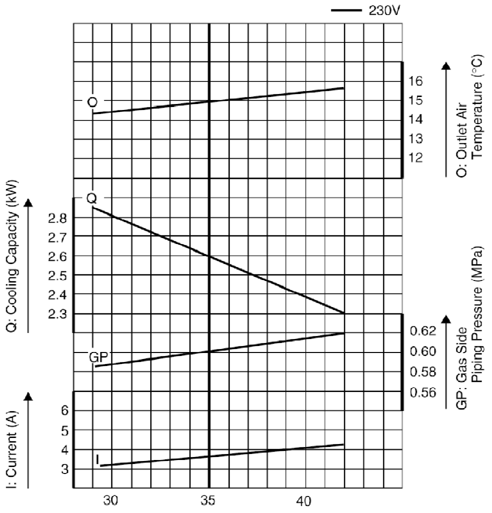

④ Remove 4 screws

# 12. Technical Data

## ■ Operation characteristics

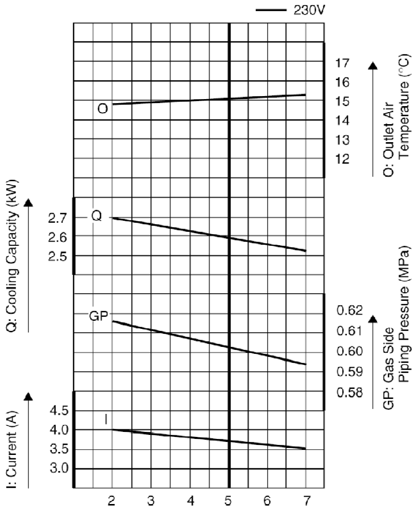
### CS-G95KE / CU-G95KE

- **Cooling Characteristic**



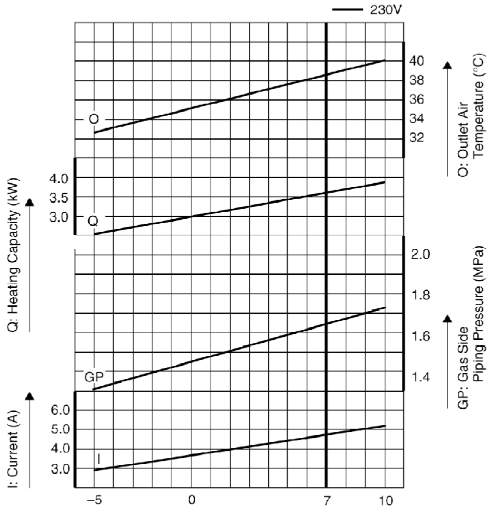
OUTDOOR AIR TEMPERATURE (°C)
[Condition] Room temperature: 27/19°C
Cooling Operation: at High Fan
Piping length: 5m
Rated Frequency Operation

- **Piping Length Characteristic (Cooling)**



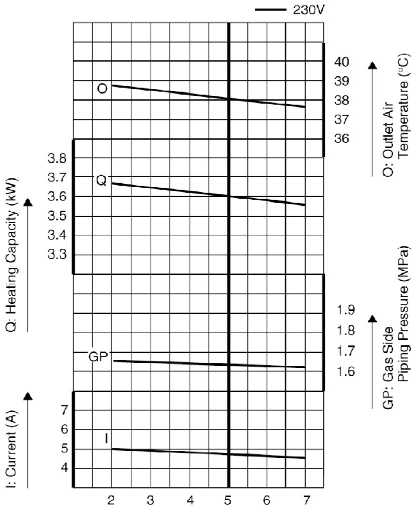
PIPING LENGTH (m)
[Condition] Room temperature: 27/19°C
Cooling Operation: at High Fan
Piping length: 5m
Rated Frequency Operation

- **Heating Characteristic**



OUTDOOR AIR TEMPERATURE (°C)
[Condition] Room temperature: 20°C
Heating Operation: at High Fan
Piping length: 5m
Rated Frequency Operation

- **Piping Length Characteristic (Heating)**

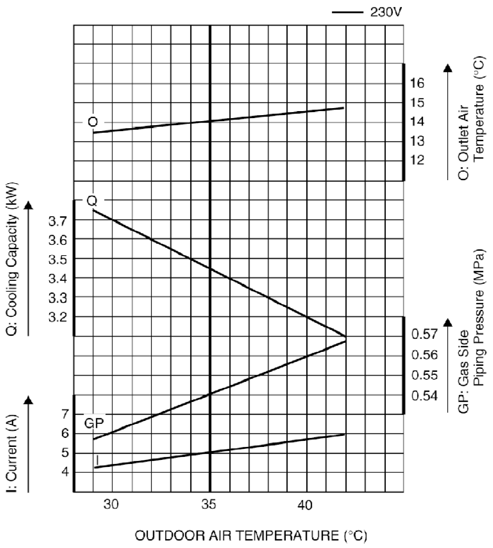


PIPING LENGTH (m)
[Condition] Room temperature: 20°C
Heating Operation: 7/6°C
Piping length: at High Fan
Rated Frequency Operation

## ■ Operation characteristics

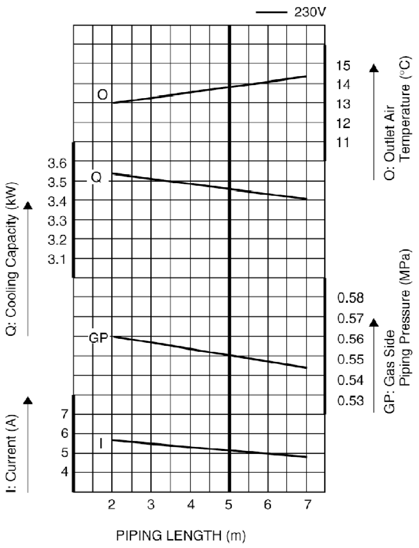
### CS-G125KE / CU-G125KE

- **Cooling Characteristic**



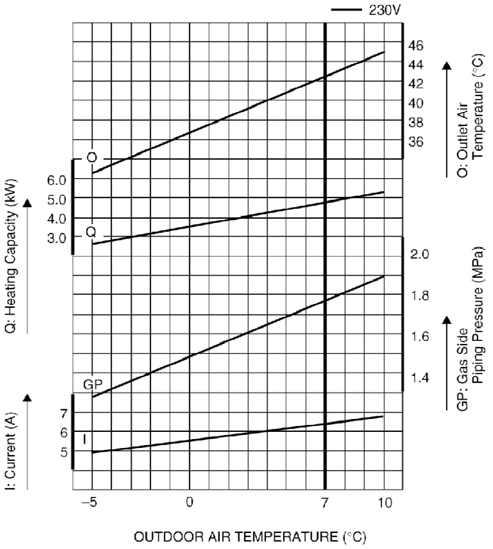
[Condition] Room temperature: 27/19°C
Cooling Operation: at High Fan
Piping length: 5m
Rated Frequency Operation

- **Piping Length Characteristic (Cooling)**



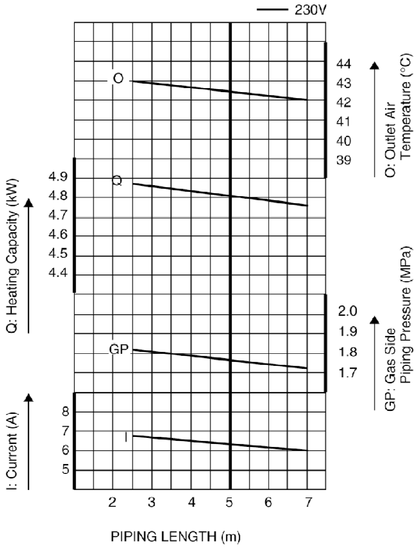
[Condition] Room temperature: 27/19°C
Cooling Operation: 35/24°C
Piping length: at High Fan
Rated Frequency Operation

- **Heating Characteristic**



[Condition] Room temperature: 20°C
Heating Operation: at High Fan
Piping length: 5m
Rated Frequency Operation

- **Piping Length Characteristic (Heating)**



[Condition] Room temperature: 20°C
Heating Operation: 7/6°C
Piping length: at High Fan
Rated Frequency Operation

## ■ Sensible Capacity Chart

- **CS-G95KE**

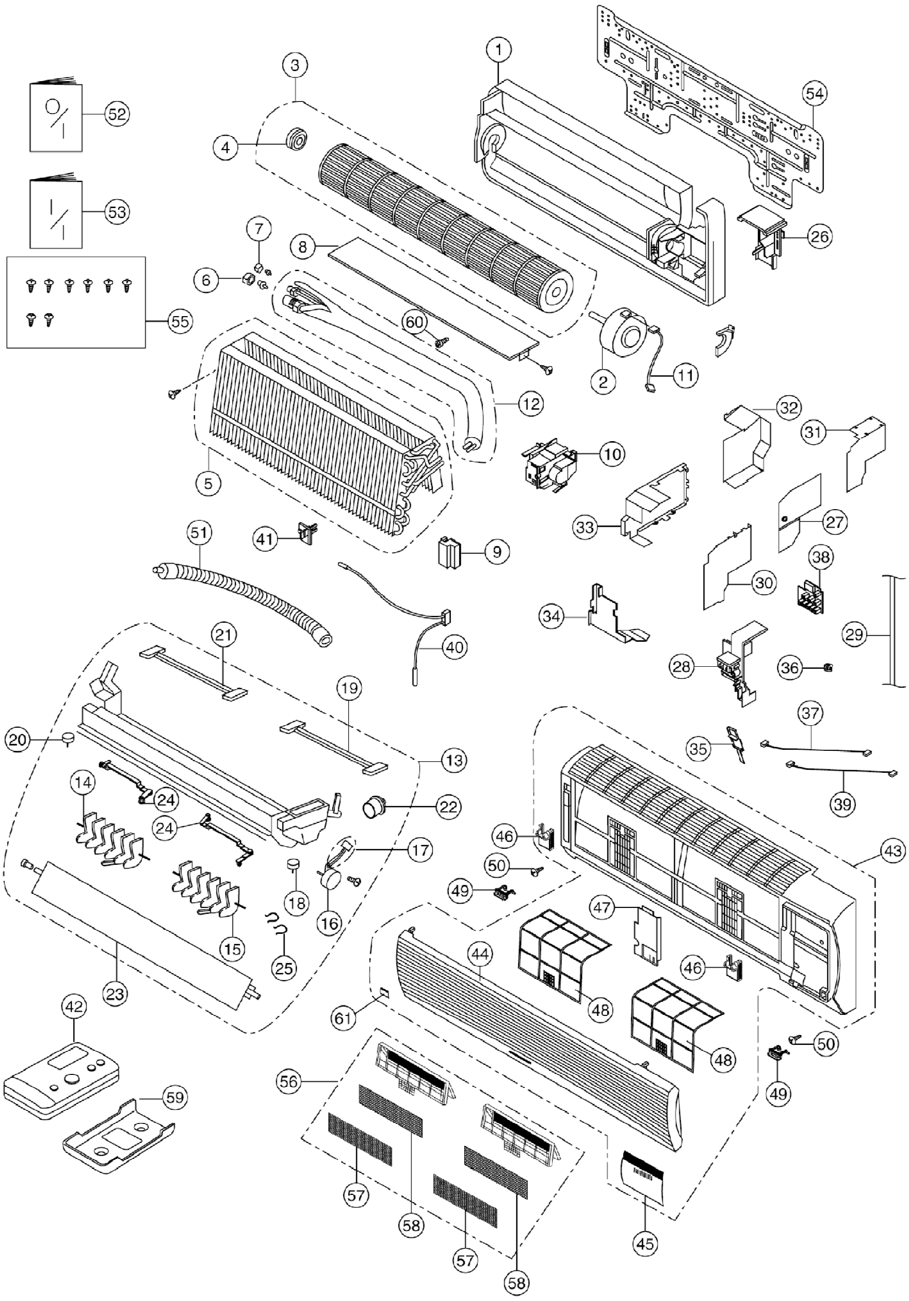
| 230V | Outdoor Temp. (°C) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indoor wet bulb temp. | 30 | | | 35 | | | 40 | | | 46 | | |
| | TC | SHC | IP | TC | SHC | IP | TC | SHC | IP | TC | SHC | IP |
| 17.0°C | 2.58 | 1.96 | 0.67 | 2.41 | 1.88 | 0.72 | 2.24 | 1.80 | 0.77 | 2.04 | 1.71 | 0.83 |
| 19.0°C | | | | 2.60 | | 0.73 | | | | | | |
| 19.5°C | 2.83 | 2.05 | 0.68 | 2.65 | 1.97 | 0.73 | 2.46 | 1.89 | 0.78 | 2.24 | 1.80 | 0.85 |
| 22.0°C | 3.09 | 2.12 | 0.69 | 2.88 | 2.04 | 0.75 | 2.68 | 1.97 | 0.80 | 2.44 | 1.88 | 0.86 |

- **CS-G125KE**

| 230V | Outdoor Temp. (°C) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indoor wet bulb temp. | 30 | | | 35 | | | 40 | | | 46 | | |
| | TC | SHC | IP | TC | SHC | IP | TC | SHC | IP | TC | SHC | IP |
| 17.0°C | 3.42 | 2.59 | 0.96 | 3.20 | 2.49 | 1.03 | 2.97 | 2.39 | 1.11 | 2.70 | 2.27 | 1.19 |
| 19.0°C | | | | 3.45 | | 1.05 | | | | | | |
| 19.5°C | 3.76 | 2.72 | 0.98 | 3.51 | 2.61 | 1.05 | 3.27 | 2.51 | 1.13 | 2.97 | 2.39 | 1.22 |
| 22.0°C | 4.10 | 2.82 | 1.00 | 3.83 | 2.71 | 1.07 | 3.56 | 2.61 | 1.15 | 3.24 | 2.49 | 1.24 |

# 13. Exploded View

**CS-G95KE / CS-G125KE**



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**Note:**

**The above exploded view is for the purpose of parts disassembly and replacement.**

**The non-numbered parts are not kept as standard service parts.**

# 14. Replacement Parts List

**<Model: CS-G95KE / CS-G125KE>**

| NO. | DESCRIPTION & NAME | Q'TY | CS-G95KE | CS-G125KE | REMARKS |
|---|---|---|---|---|---|
| 1 | CHASSY COMPLETE | 1 | CWD50C338 | ← | |
| 2 | FAN MOTOR | 1 | CWA98244 | ← | 0 |
| 3 | CROSS FLOW FAN | 1 | CWH02C060 | ← | |
| 4 | BEARING | 1 | CWH64K007 | ← | |
| 5 | EVAPORATOR | 1 | CWB30C271 | ← | |
| 6 | FLARE NUT (1/2") OR (3/8") | 1 | CWT25005 (3/8") | CWT25007 (1/2") | |
| 7 | FLARE NUT (1/4") | 1 | CWH6002140 | ← | |
| 8 | SPACER COMPLETE | 1 | CWH54C031 | ← | |
| 9 | ANTI VIBRATION BUSHING | 1 | CWH50211 | ← | |
| 10 | FAN MOTOR COVER | 1 | CWD931039 | ← | |
| 11 | LEAD WIRE - FAN MOTOR | 1 | CWA67C2310 | ← | |
| 12 | TUBE ASSY | 1 | CWT01C2136 | CWT01C623 | |
| 13 | DISCHARGE GRILLE COMPLETE | 1 | CWE20C2063 | ← | |
| 14 | VANE COMPLETE (LEFT) | 1 | CWE24C113 | ← | |
| 15 | VANE COMPLETE (RIGHT) | 1 | CWE24C114 | ← | |
| 16 | MOTOR - AIR SWING (UP/DOWN) | 1 | CWA98C033 | ← | 0 |
| 17 | LEAD WIRE - AIR SWING MOTOR (UP/DOWN) | 1 | CWA67C1814 | ← | |
| 18 | MOTOR - AIR SWING (RIGHT) | 1 | CWA98276 | ← | 0 |
| 19 | LEAD WIRE - AIR SWING MOTOR (RIGHT) | 1 | CWA67C2187 | ← | |
| 20 | MOTOR - AIR SWING (LEFT) | 1 | CWA98277 | ← | 0 |
| 21 | LEAD WIRE - AIR SWING MOTOR (LEFT) | 1 | CWA67C2188 | ← | |
| 22 | CAP COMPLETE | 1 | CWH52C003 | ← | |
| 23 | VANE | 1 | CWE241027A | ← | |
| 24 | LEVER COMPLETE | 2 | CWH65C026 | ← | |
| 25 | RETAINING RING | 1 | XUC3 | ← | |
| 26 | PARTICULAR PIECE | 1 | CWD931019 | ← | |
| 27 | ELECTRONIC CONTROLLER | 1 | CWA742329 | CWA742328 | 0 |
| 28 | TERMINAL BOARD COMPLETE | 1 | CWA28C2038 | ← | 0 |
| 29 | POWER SUPPLY CORD | 1 | CWA20C763 | CWA20C764 | |
| 30 | CONTROL BOARD COVER | 1 | CWH13463 | ← | |
| 31 | CONTROL BOARD COVER | 1 | CWH13465 | ← | |
| 32 | CONTROL BOARD COVER | 1 | CWH13466 | ← | |
| 33 | CONTROL BOARD COVER | 1 | CWH13464 | ← | |
| 34 | PARTICULAR PIECE | 1 | CWD931040 | ← | |
| 35 | INDICATOR HOLDER | 1 | CWD931018 | ← | |
| 36 | ELECTRONIC CONTROLLER (RECEIVER) | 1 | CWA74919 | ← | 0 |
| 37 | LEAD WIRE - RECEIVER | 1 | CWA67C2913 | ← | |
| 38 | INDICATOR COMPLETE | 1 | CWE39C1023 | ← | 0 |
| 39 | LEAD WIRE - INDICATOR | 1 | CWA67C3477 | ← | |
| 40 | SENSOR COMPLETE | 1 | CWA50C613 | ← | 0 |

| NO. | DESCRIPTION & NAME | Q'TY | CS-G95KE | CS-G125KE | REMARKS |
|---|---|---|---|---|---|
| 41 | HOLDER SENSOR | 1 | CWH32142 | ← | |
| 42 | REMOTE CONTROL SWITCH | 1 | CWA75C2083 | ← | |
| 43 | FRONT GRILLE COMPLETE | 1 | CWE11C2110 | ← | |
| 44 | INTAKE GRILLE COMPLETE | 1 | CWE22C1006 | ← | |
| 45 | DECORATION BASE | 1 | CWE35C1008 | ← | |
| 46 | TAB | 2 | CWD931020 | ← | |
| 47 | GRILLE DOOR COMPLETE | 1 | CWE141014 | ← | |
| 48 | AIR FILTER | 2 | CWD00240 | ← | |
| 49 | CAP - FRONT GRILLE | 2 | CWH52267 | ← | |
| 50 | SCREW - FRONT GRILLE | 2 | XTN4+16C | ← | |
| 51 | DRAIN HOSE | 1 | CWH5880580 | ← | |
| 52 | OPERARTING INSTRUCTIONS | 1 | CWF563167 | ← | |
| 53 | INSTALLATION INSTRUCTIONS | 1 | CWF612099 | ← | |
| 54 | INSTALLATION PLATE | 1 | CWH36157 | ← | |
| 55 | BAG COMPLETE (INSTALLATION SCREW) | 1 | CWH82C067 | ← | |
| 56 | AIR PURIFYING FILTER COMPLETE | 1 | CWD00C1028 | ← | |
| 57 | AIR PURIFYING FILTER (CATECHIN) | 2 | CWD001014 | ← | 0 |
| 58 | AIR PURIFYING FILTER (DEODORIZING) | 2 | CWD001033 | ← | 0 |
| 59 | REMOTE CONTROL HOLDER | 1 | CWH36161 | ← | |
| 60 | SCREW - CROSS FLOW FAN | 1 | CWH4580304 | ← | |
| 61 | DECORATION BASE | 1 | CWE35K1052 | ← | |

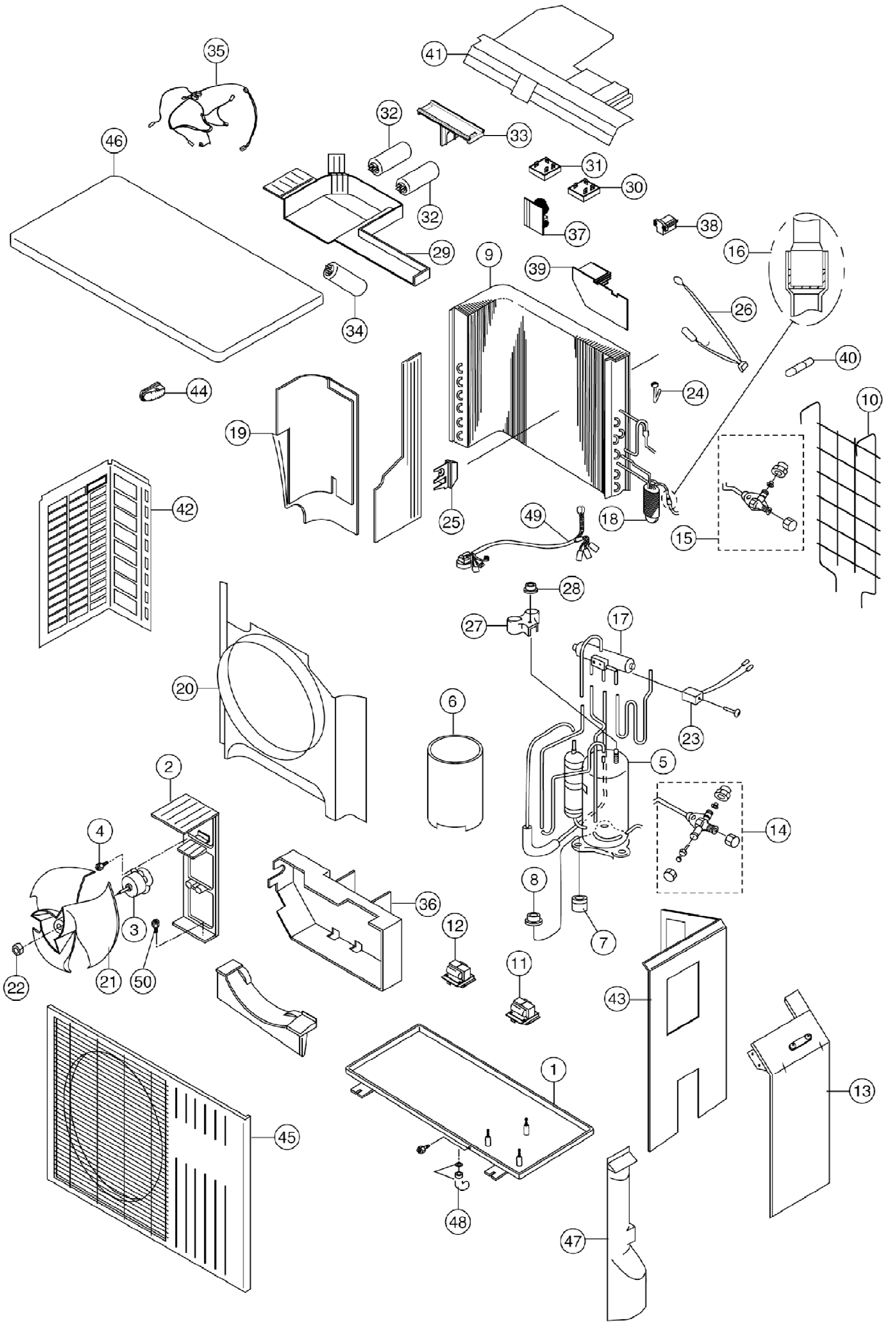
**(Note)**

**- All parts are supplied from MACC, Malaysia (Vendor Code: 086).**

**- "O" marked parts are recommended to be kept in stock.**

# 15. Exploded View

**CU-G95KE / CU-G125KE**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**Note:**

**The above exploded view is for the purpose of parts disassembly and replacement.**
**The non-numbered parts are not kept as standard service parts.**

# 16. Replacement Parts List

**<Model: CU-G95KE / CU-G125KE>**

| NO. | DESCRIPTION & NAME | Q'TY | CU-G95KE | CU-G125KE | REMARKS |
|---|---|---|---|---|---|
| 1 | CHASSY COMPLETE | 1 | CWD50K660A | ← | |
| 2 | FAN MOTOR BRACKET | 1 | CWD54254 | CWD54255 | |
| 3 | FAN MOTOR | 1 | CWA95384 | CWA95380 | 0 |
| 4 | SCREW - FAN MOTOR | 4 | CWH55406 | ← | |
| 5 | COMPRESSOR | 1 | 2RD132X5BB03 | 2RD132X5BA03 | 0 |
| 6 | SOUND PROOF MATERIAL | 4 | CWG302029 | ← | |
| 7 | ANTI - VIBRATION BUSHING | 3 | CWH50183 | ← | |
| 8 | NUT | 3 | CWH56000 | ← | |
| 9 | CONDENSER | 1 | CWB32C350 | CWB32C349 | |
| 10 | WIRE NET | 1 | CWD04197A | CWD04198A | |
| 11 | REACTOR (RIGHT) | 1 | CWA421010 | ← | |
| 12 | REACTOR (LEFT) | 1 | CWA421011 | ← | |
| 13 | HOLDER COUPLING | 1 | CWH35177 | ← | |
| 14 | 3 WAY VALVE | 1 | CWB01481 | CWB01480 | |
| 15 | 2 WAY VALVE | 1 | CWB02308 | ← | |
| 16 | STRAINER | 1 | CWB11025 | ← | |
| 17 | 4 WAY VALVE | 1 | CWB00002 | CWB00003 | |
| 18 | TUBE ASSY (CAPILLARY TUBE) | 1 | CWT01C668 | CWT01C667 | |
| 19 | SOUND PROOF BOARD | 1 | CWH15290 | CWH15291 | |
| 20 | AIR GUIDER PROPELLER FAN | 1 | CWD31C035 | ← | |
| 21 | PROPELLER FAN | 1 | CWH00K087 | ← | |
| 22 | NUT | 1 | CWH56053 | ← | |
| 23 | V COIL COMPLETE | 1 | CWA43C2007 | ← | 0 |
| 24 | HOLDER SENSOR | 1 | CWH32074 | ← | |
| 25 | HOLDER SENSOR | 1 | CWH32082 | ← | |
| 26 | SENSOR COMPLETE | 1 | CWA50C614 | ← | 0 |
| 27 | TERMINAL COVER | 1 | CWH171001 | ← | |
| 28 | NUT | 1 | CWH7080300 | ← | |
| 29 | CONTROL BOARD | 1 | CWH10978 | ← | |
| 30 | DIODE BRIDGE 1 | 1 | A54S25VB60 | ← | 0 |
| 31 | DIODE BRIDGE 2 | 1 | A54D15VBA80 | A54D25VB80 | 0 |
| 32 | CAPACITOR | 1/2 | CWA30201 (1) | CWA30200 (2) | 0 |
| 33 | HOLDER CAPACITOR | 1 | CWH30183 | CWH30184 | |
| 34 | SH CAPACITOR | 1 | CWA31137 | ← | 0 |
| 35 | LEAD WIRE COMPLETE (ZNR) | 1 | CWA67C3041 | CWA67C3042 | |
| 36 | CONTROL BOARD | 1 | CWH10979 | ← | |
| 37 | NOISE FILTER | 1 | CWA49C209 | ← | 0 |
| 38 | RESISTOR | 1 | CWA47038 | ← | 0 |
| 39 | ELECTRONIC CONTROLLER | 1 | CWA742343 | CWA742342 | 0 |
| 40 | FUSE | 1 | XBACW12 | ← | 0 |
| 41 | CONTROL BOARD COVER | 1 | CWH13C324 | ← | |
| 42 | CABINET SIDE PLATE | 1 | CWE04218A | ← | |
| 43 | CABINET SIDE PLATE | 1 | CWE04217A | CWE04219A | |

| NO. | DESCRIPTION & NAME | Q'TY | CU-G95KE | CU-G125KE | REMARKS |
|---|---|---|---|---|---|
| 44 | HANDLE | 1 | CWE16037C | ← | |
| 45 | CABINET FRONT PLATE | 1 | CWE06K104A | ← | |
| 46 | CABINET TOP PLATE | 1 | CWE03K036A | CWE03K037A | |
| 47 | CONTROL BOARD COVER | 1 | CWH13C325 | ← | |
| 48 | DRAIN ELBOW | 1 | CWH5850080 | ← | |
| 49 | SENSOR COMPLETE - COMPRESSOR | 1 | CWA67C3563 | ← | |
| 50 | SCREW - FAN MOTOR BRACKET | 1 | CWH55189 | ← | |

**(Note)**

**- All parts are supplied from MACC, Malaysia (Vendor Code: 086).**

**- "O" marked parts are recommended to be kept in stock.**

# 17. Electronic Parts List

**<Model : CWA742328 / CWA742329>**

| SYMBOL | DESCRIPTION & NAME | PART NO. |
|---|---|---|
| BZ1 | BUZZER | A48040 |
| D1, D2, D4, D5, D7, D8 | DIODE | A541SS355T |
| D3, D6, D9 | DIODE | A54D1F60 |
| DB1 | DIODE BRIDGE | A54D3SBA60F1 |
| FUSE1 | FUSE | XBACW067 |
| IC1 | INTEGRATED CIRCUIT | A5278366F114 |
| IC2 | INTEGRATED CIRCUIT | A52BR9020F |
| IC3 | INTEGRATED CIRCUIT | A52MPC393G22 |
| IC4 | INTEGRATED CIRCUIT | A52PST600DR |
| IC5, IC6 | INTEGRATED CIRCUIT | A52A2003GR2 |
| IC7 & IC8 | INTEGRATED CIRCUIT | A52C108 |
| ICX | INTEGRATED CIRCUIT | A532122A (CWA742328)<br>A532123A (CWA742329) |
| PC1 | PHOTO COUPLER | A52S2501L1KC |
| PC2 | PHOTO COUPLER | A52TLP371LF |
| PC3 | PHOTO COUPLER | A52LP521L1BL |
| Q1, Q3 | TRANSISTOR | A55DC143XKTX |
| Q4, Q10 | TRANSISTOR | A55DA143XKTX |
| SW4 | SWITCH | A01059 |
| T1 | TRANSFORMER | A40C295 |
| ZNR1 | ZNR | ERZVEAV511 |
| ZNR2 | ZNR | ERZVAV271 |
| X1 | ZENAR DIODE | A45CTS4MG02T |
| FUSE HOLDER | FUSE HOLDER | XCSCW032 |

**<Model : CWA742343 / CWA742342>**

| SYMBOL | DESCRIPTION & NAME | PART NO. |
|---|---|---|
| C-FM | CAPACITOR - FM | A31735 |
| CT1 | CURRENT TRANSFORMER | A40260 |
| D1 | DIODE | A54AU02ZV0 |
| D17, D18, D20 | DIODE | A54RA15-06V3 |
| D19 | DIODE | A54RA15-10V3 |
| D2, D3, D4, D5, D8 | DIODE | A54RA22-04V3 |
| D6 | DIODE | A541SS136T |
| D9 ~ D16 | DIODE | A54MA165TA5 |
| FUSE1, FUSE2 | FUSE | XBACW067 |
| IC1 | INTEGRATED CIRCUIT | A5278214WP43 |
| IC2 | INTEGRATED CIRCUIT | A52MPA2003C |
| IC3 | INTEGRATED CIRCUIT | A52C050 |
| IC4 | INTEGRATED CIRCUIT | A52M51951AST |
| IC5 | INTEGRATED CIRCUIT | A52BX8454 |
| IC6 | INTEGRATED CIRCUIT | A52AN78L10TA |
| IC7 | INTEGRATED CIRCUIT | A52AN79L10TA |
| IC8 | INTEGRATED CIRCUIT | A52MPC339C |
| ICX | SERIAL PROM | A53716B (CWA742342)<br>A53717B (CWA742343) |
| LED1 | LED | A54SLR342DB7 |
| PC1, PC3, PC12, PC13 | PHOTO COUPLER | A52S2501-1PC |
| PC2 | PHOTO COUPLER | A52LP521-3GB |
| PC4 | PHOTO COUPLER | A52PS2633E |
| PC5 | PHOTO COUPLER | A52S2501-1LC |
| PC6 ~ PC11 | PHOTO COUPLER | A52LP521-1GH |
| Q1 | TRANSISTOR | A55C070 |
| Q4 | TRANSISTOR | A55DTA143XST |
| Q5 | TRANSISTOR | A55C1740STPQ |
| Q6 | TRANSISTOR | A55DTC143XST |
| Q7 | TRANSISTOR | A55DTA143TST |
| Q8 | TRANSISTOR | A5520CVL33A |
| RY-FM | RELAY | A00161 |
| RY-PWR | RELAY | A001001 |
| SSR1 | SSR | A56S26MD01M |
| T1 | TRANSFORMER | A40367 |
| VR1 | VARISTOR | A44EVMEASB22 |
| VR2 | VARISTOR | A44VMEASB13 |
| X1 | RESONATOR | A45ST12MTWOT |
| ZD1 | ZENAR DIODE | A54D6.2EB1TB |
| ZNR1 | ZNR | ERZVA9V271 |
| CR1, CR2 | SURGE ABSORBER | A59014 |
| FUSE HOLDER | FUSE HOLDER | XCSCW032 |

# 18. Electronic Circuit Diagram

### CS-G95KE / CS-G125KE

Fig. 1

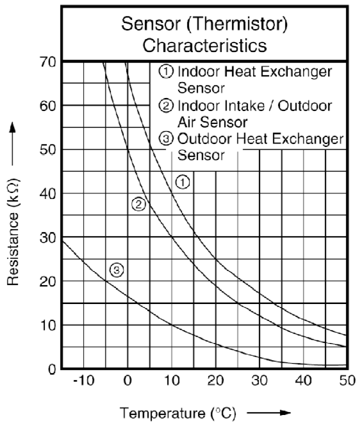
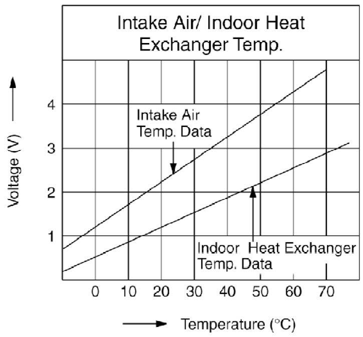


Fig. 2



### CU-G95KE / CU-G125KE

Fig. 3

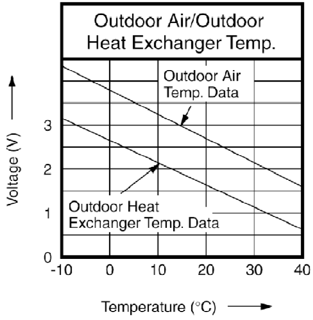


Fig. 4

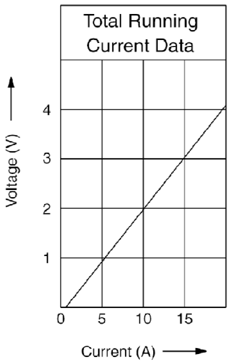


Fig. 5

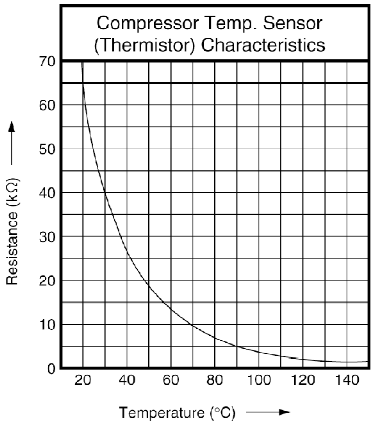
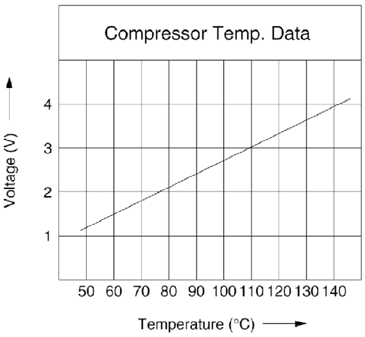


Fig. 6



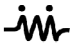
### How to use electronic circuit diagram

Before using the circuit diagram, read the following carefully.

* Voltage measurement
Voltage has been measured with a digital tester when the indoor fan is set at high fan speed under the following conditions without setting the timer.
Use them for servicing.
Voltage indication is in Red at all operations.

* Indications for resistance

| | |
|---|---|
| a. K....kΩ | M....MΩ |
| W...watt | Not indicated....1/4W |

b. Type
Not indicated..........carbon resister
Tolerance±5%
 ..........metal oxide resister
Tolerance±1%

* Indications for capacitor
a. Unit μ....μF P....pF
b. Type Not indicated....ceramic capacitor
(S)...........S series aluminium electrolytic capacitor
(Z)...........Z series aluminium electrolytic capacitor
(SU)........SU series aluminium electrolytic capacitor
(P)...........P series polyester system
(SXE)......SXE series aluminium electrolytic capacitor
(SRA)......SRA series aluminium electrolytic capacitor
(KME)......KME series aluminium electrolytic capacitor

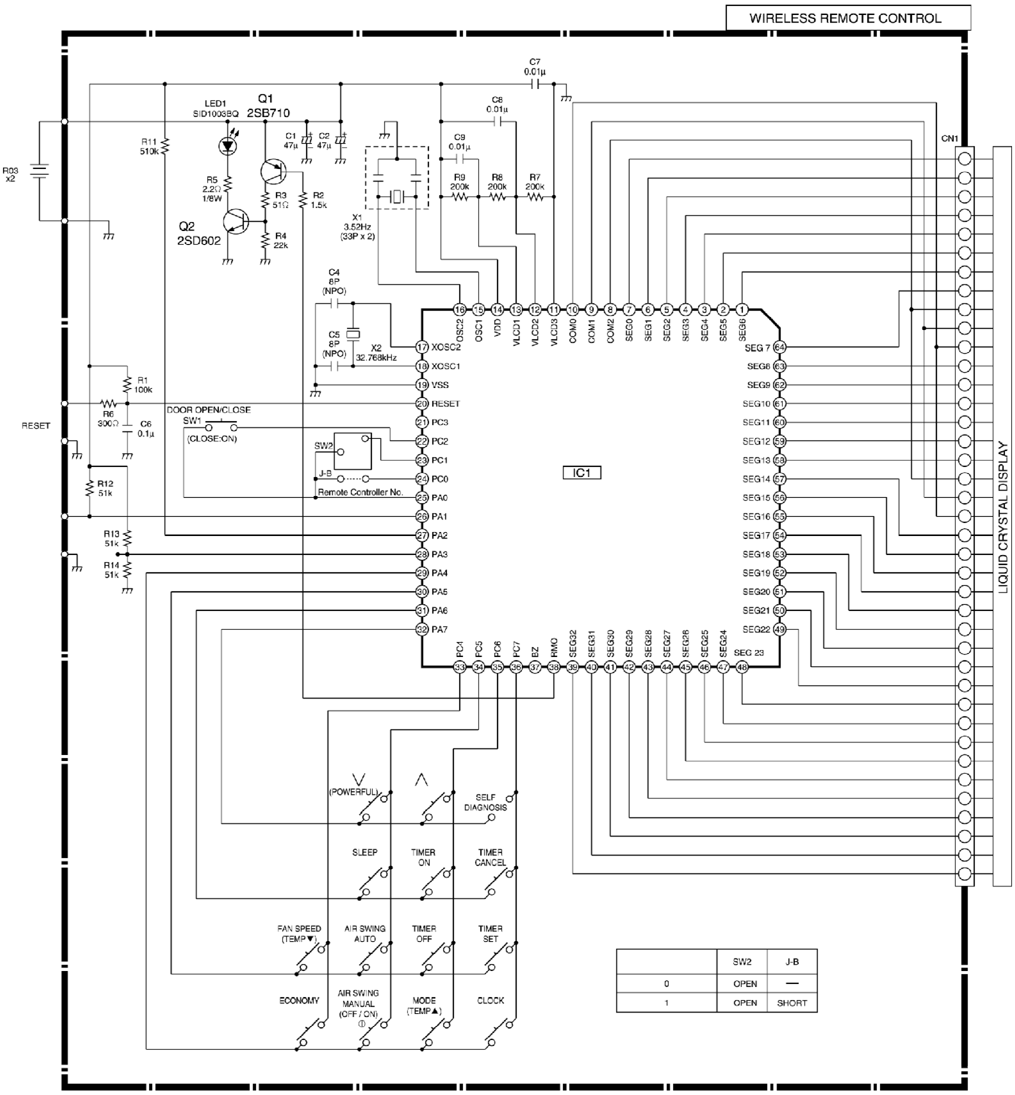
* Diode without indication.............MA165
※ Circuit Diagram is subject to change without notice for further development.

**TIMER TABLE <INDOOR>**

| Name | Time | Test mode (When test point Short-circuited) |
|---|---|---|
| **4 Way Valve abnormality** | **4 min.** | **2.4 sec.** |
| **Outdoor air temp. for Hz No. decision** | **30 min.** | **0 sec.** |
| **Anti-dew formation control** | **20 min.** | **0 sec.** |
| **Anti-freezing control** | **6 min.** | **0 sec.** |
| **Themo OFF delay** | **3 min.** | **0 sec.** |
| **Low pressure control (gas leakage) compressor OFF time** | **3 min.** | **0 sec.** |
| **Time delay safety control** | **2 min. 58 sec.** | **0 sec.** |
| **Outdoor timer status shift time** | **30 sec.** | **0 sec.** |
| | **60 sec.** | |
| **Intake air temp. sampling time** | **20 sec.** | **0 sec.** |
| **Auto mode judgement sampling time** | **1 hr.** | **6 sec.** |
| **24 hours ON / OFF timer** | | **1 hour → 1 min.** |
| **Heating SSHi fan speed shift** | **120 min.** | **12 sec.** |
| **Cooling SHi fan speed shift** | **30 min.** | **3 sec.** |
| **Hot start forced completion** | **4 min.** | **0 sec.** |
| **Outdoor timer status shift time** | **30 min.** | **3 sec.** |
| | **90 min.** | **9 sec.** |
| | **180 min.** | **18 sec.** |
| | **4200 min.** | **42 sec.** |
| **Auto mode judgement interval** | **30 min.** | **3 sec.** |
| **Sleep mode timer shift** | | **1 hour → 6 sec.** |
| **After Hot start / Deice** | **2 min.** | **12 sec.** |

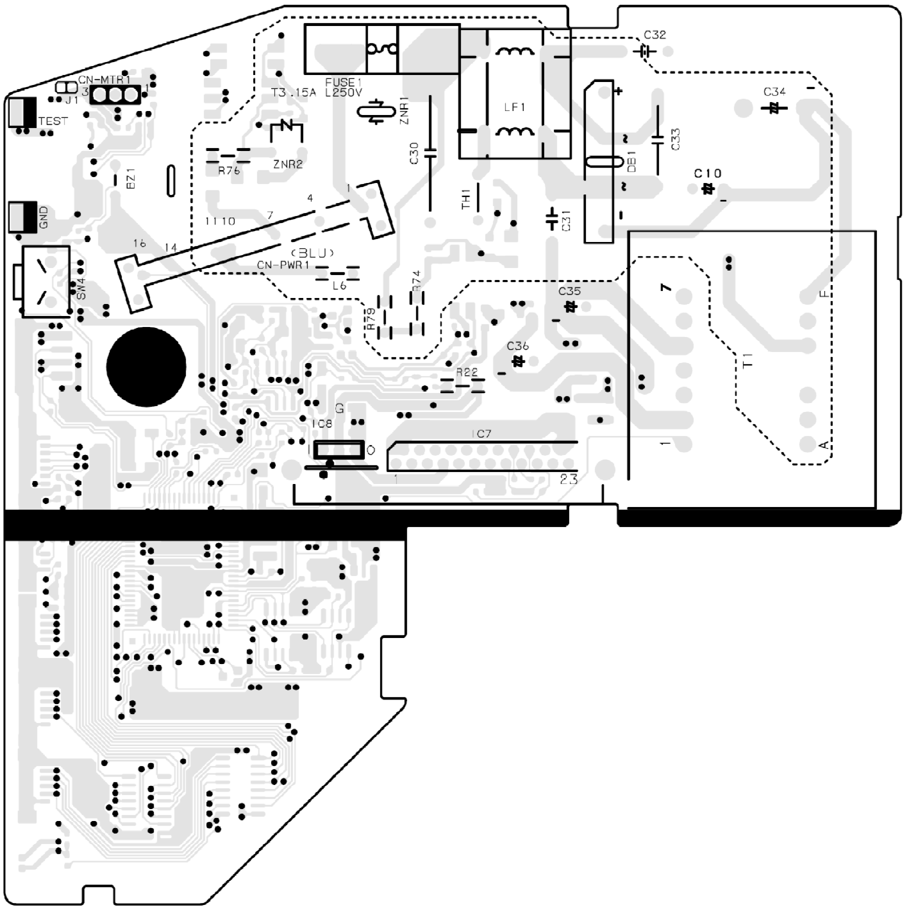
| Name | Time | Test mode<br>(When test point<br>Short-circuited) |
|---|---|---|
| **DC PEAK** | **30 sec.** | **3 sec.** |
| **Deice detection** | **120 min.** | **24 sec.** |
| | **80 min.** | **16 sec.** |
| | **40 min.** | **8 sec.** |
| | **40 min.** | **8 sec.** |
| **Deice forced completion** | **11 min.** | **66 sec.** |
| **Hz lock time** | **30 sec.** | **0 sec.** |
| **Outdoor fan delay operation control** | **30 sec.** | **3 sec.** |
| **4 way valve delay operation control** | **3 min.** | **18 sec.** |

## 18.1. REMOTE CONTROL

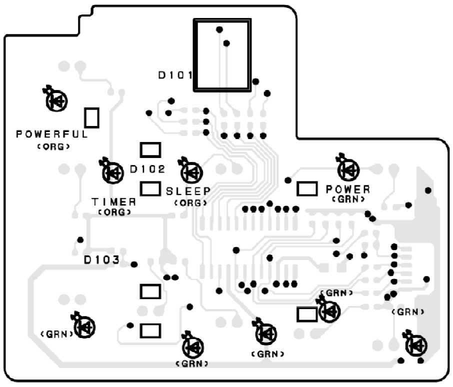

WIRELESS REMOTE CONTROL
C7 0.01µ
C8 0.01µ
C9 0.01µ
LED1 SID1003BQ
Q1 2SB710
Q2 2SD602
R11 510k
R03 x2
R5 2.2Ω 1/8W
R3 51Ω
R2 1.5k
R4 22k
C1 47µ
C2 47µ
R9 200k
R8 200k
R7 200k
X1 3.52Hz (33P x 2)
C4 8P (NPO)
C5 8P (NPO)
X2 32.768kHz
R1 100k
R6 300Ω
C6 0.1µ
RESET
DOOR OPEN/CLOSE
SW1
(CLOSE:ON)
SW2
J-B
Remote Controller No.
R12 51k
R13 51k
R14 51k
IC1
CN1
LIQUID CRYSTAL DISPLAY
XOSC2
XOSC1
VSS
RESET
PC3
PC2
PC1
PC0
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
OSC2
OSC1
VDD
VLCD1
VLCD2
VLCD3
COM0
COM1
COM2
SEG0
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG 7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
SEG17
SEG18
SEG19
SEG20
SEG21
SEG22
SEG 23
PC4
PC5
PC6
PC7
BZ
RMO
SEG32
SEG31
SEG30
SEG29
SEG28
SEG27
SEG26
SEG25
SEG24
(POWERFUL)
SELF DIAGNOSIS
SLEEP
TIMER ON
TIMER CANCEL
FAN SPEED (TEMP▼)
AIR SWING AUTO
TIMER OFF
TIMER SET
ECONOMY
AIR SWING MANUAL (OFF / ON)
MODE (TEMP▲)
CLOCK
SW2
J-B
0
OPEN
—
1
OPEN
SHORT

## 18.2. PRINT PATTERN / INDOOR UNIT PRINTED CIRCUIT BOARD

- **MAIN**

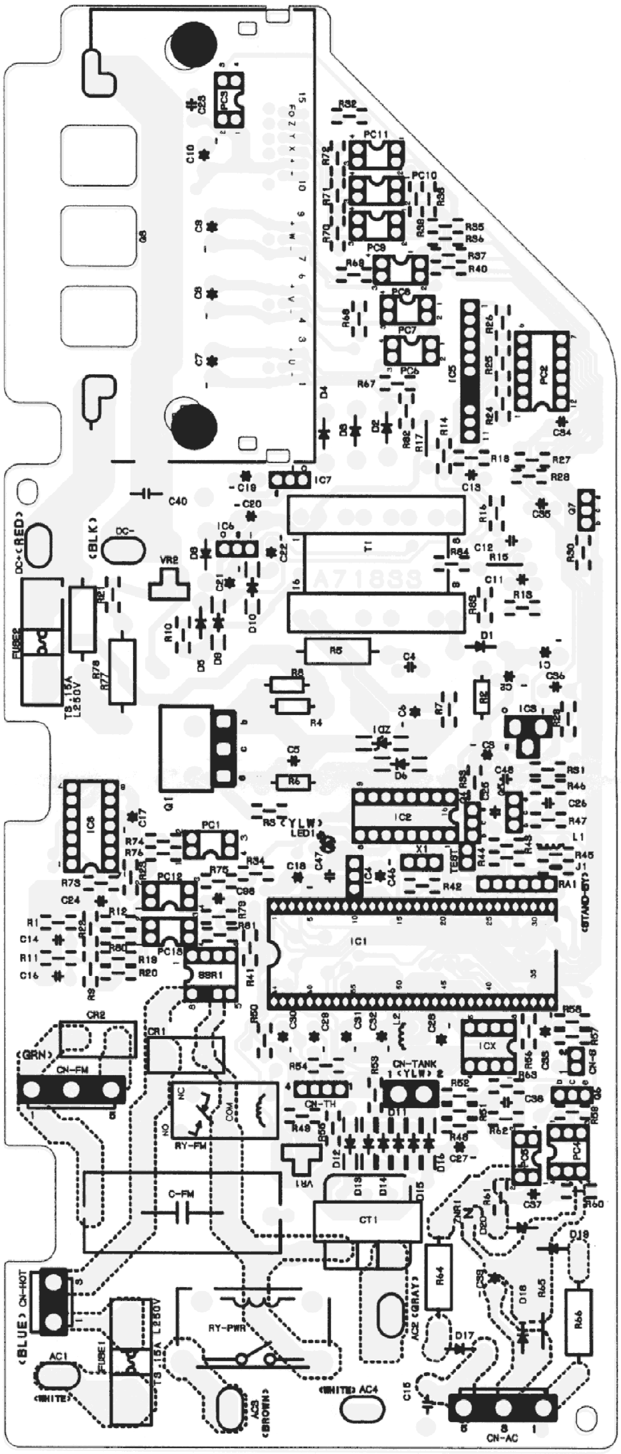

CN-MTR1
J1
TEST
GND
SW4
BZ1
T3.15A
FUSE1
L250V
ZNR1
ZNR2
R76
C30
LF1
C32
C34
C33
DB1
C10
TH1
C31
CN-PWR1
(BLU)
L6
R74
R79
C35
C36
R22
IC8
IC7
T1
23

- **INDICATOR**


D101
POWERFUL
(ORG)
D102
TIMER
(ORG)
SLEEP
(ORG)
POWER
(GRN)
D103
(GRN)
(GRN)
(GRN)
(GRN)
(GRN)

## 18.3. PRINT PATTERN / OUTDOOR UNIT PRINTED CIRCUIT BOARDBOTTOM VIEW

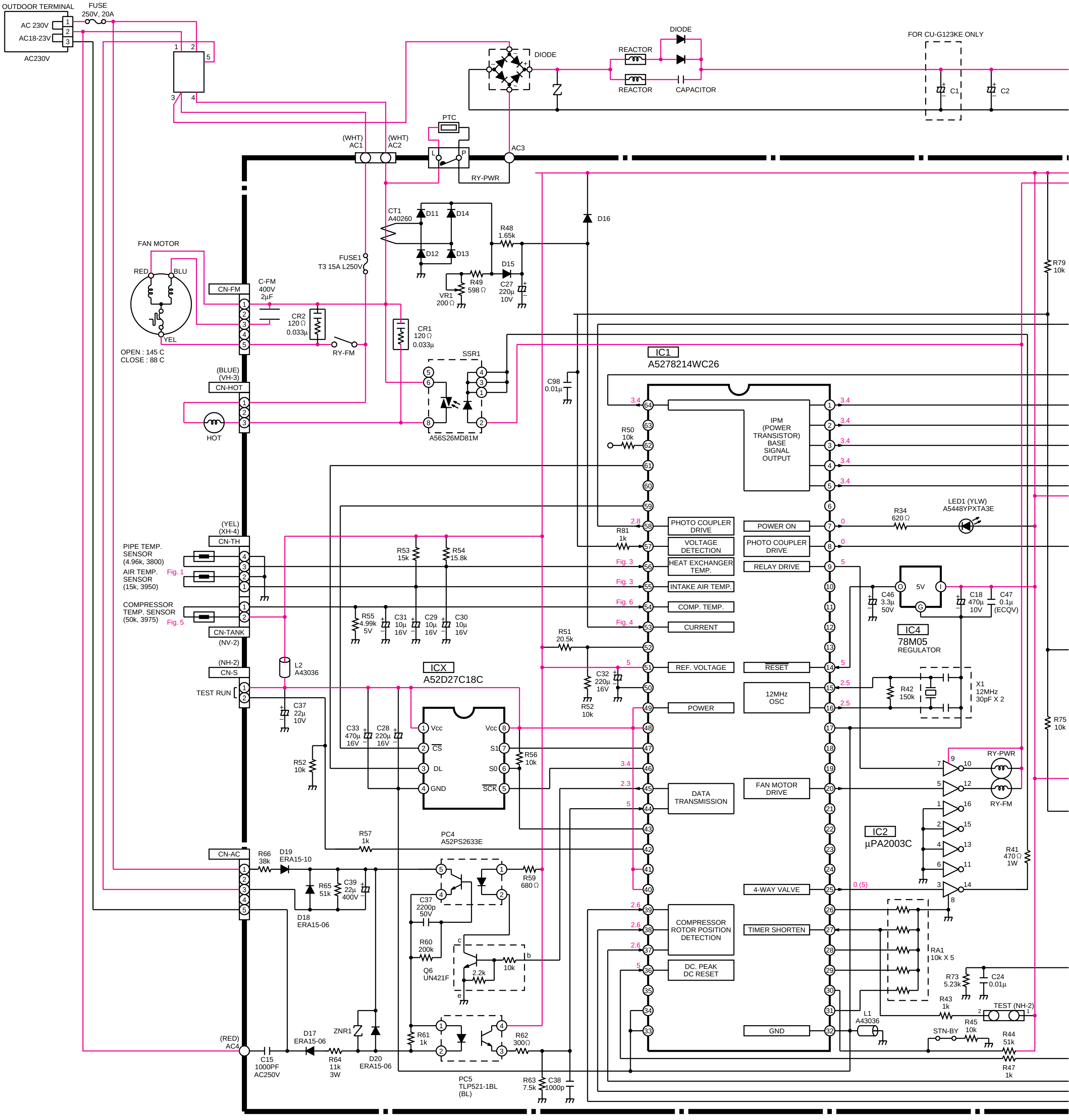
● **MAIN**


PC3
C23
C10
C9
C8
C7
D4
R32
PC11
R72
R71
PC10
R70
PC9
R69
PC8
R68
PC7
PC6
R67
R35
R36
R37
R40
R26
R25
IC5
R24
PC2
C34
R14
R17
R82
R27
R28
R18
C13
Q7
C35
R16
C12
R15
C11
R19
R30
IC7
C19
C40
C20
IC6
C22
T1
A71883
R84
R83
DC-
VR2
C21
D10
R10
D5
D6
FUSE2
T3.15A
L250V
R78
R77
R5
D1
C4
C1
C36
R8
R2
IC3
R4
Q1
C5
D3
R6
R3
LED1
R51
R46
C26
R47
L1
R45
J1
RA1
IC2
X1
TEST
R42
R44
R43
(STAND-BY)
IC8
C17
PC1
R74
R76
R73
C24
R34
R75
C18
C47
IC4
C45
PC12
C96
R79
R81
R12
R22
R80
R19
R20
R1
C14
R11
C16
R9
PC13
SSR1
R41
IC1
R55
R50
C30
C29
C31
C32
L2
C28
ICX
R57
CN-B
CR2
CR1
(GRN)
CN-FM
NC
COM
NO
RY-FM
R54
R53
CN-TANK
(YLW)
R52
CN-TH
R48
R56
R63
C38
R58
Q5
R49
R65
D11
D12
R46
C27
R62
PC5
PC4
VR1
D13
D14
D15
C37
R60
C-FM
CT1
ZNR1
C20
R61
D19
R64
C39
D18
R65
R66
(GRAY)
AC2
D17
CN-HOT
(BLUE)
AC1
(WHITE)
FUSE1
T3.15A L250V
RY-PWR
AC3
(BROWN)
(WHITE) AC4
C15
CN-AC
DC-(RED)
(BLK)
(YLW)

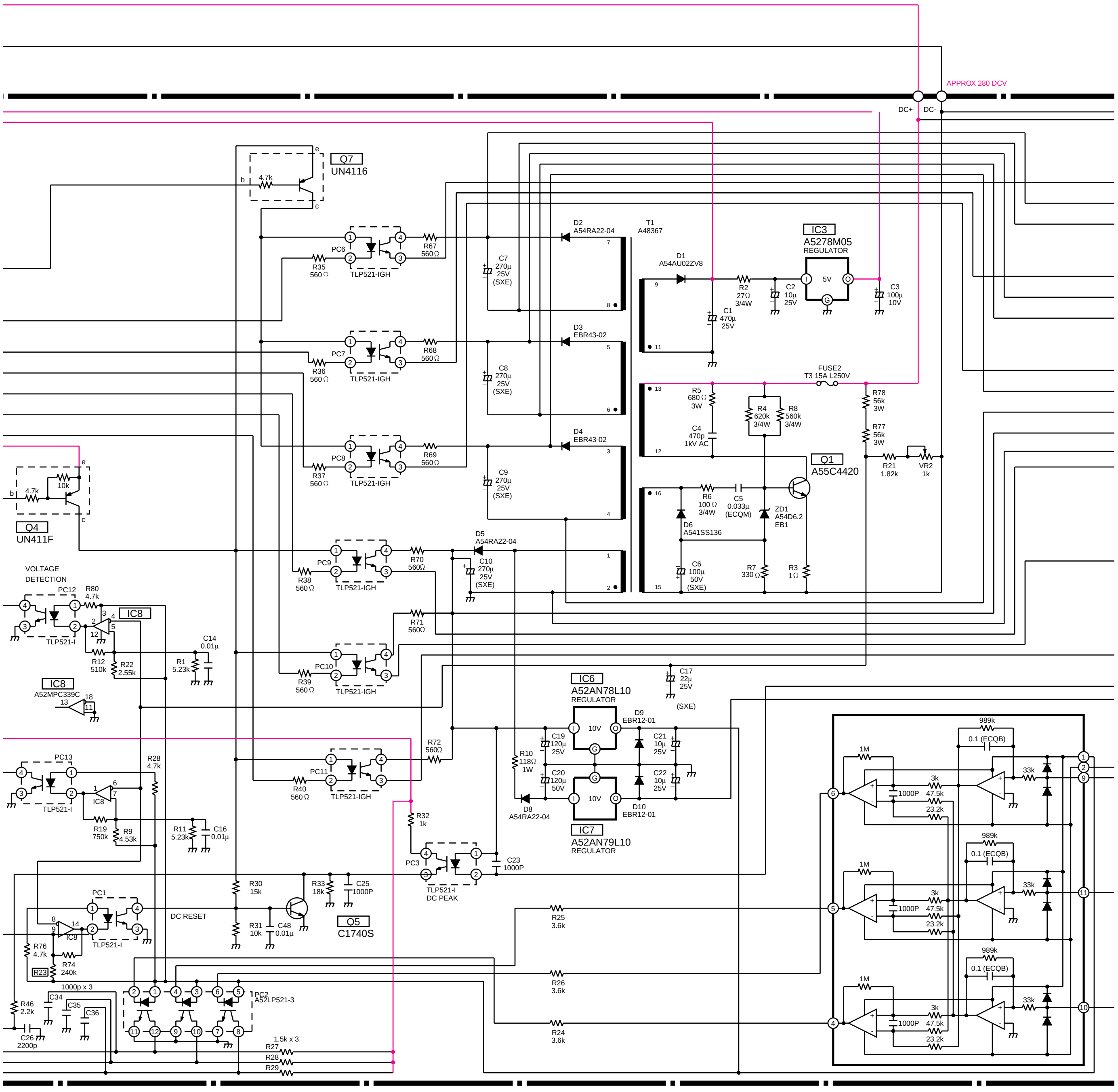
**[MACC] Printed in Malaysia /**

- **CU-G95KE**
- **CU-G125KE**

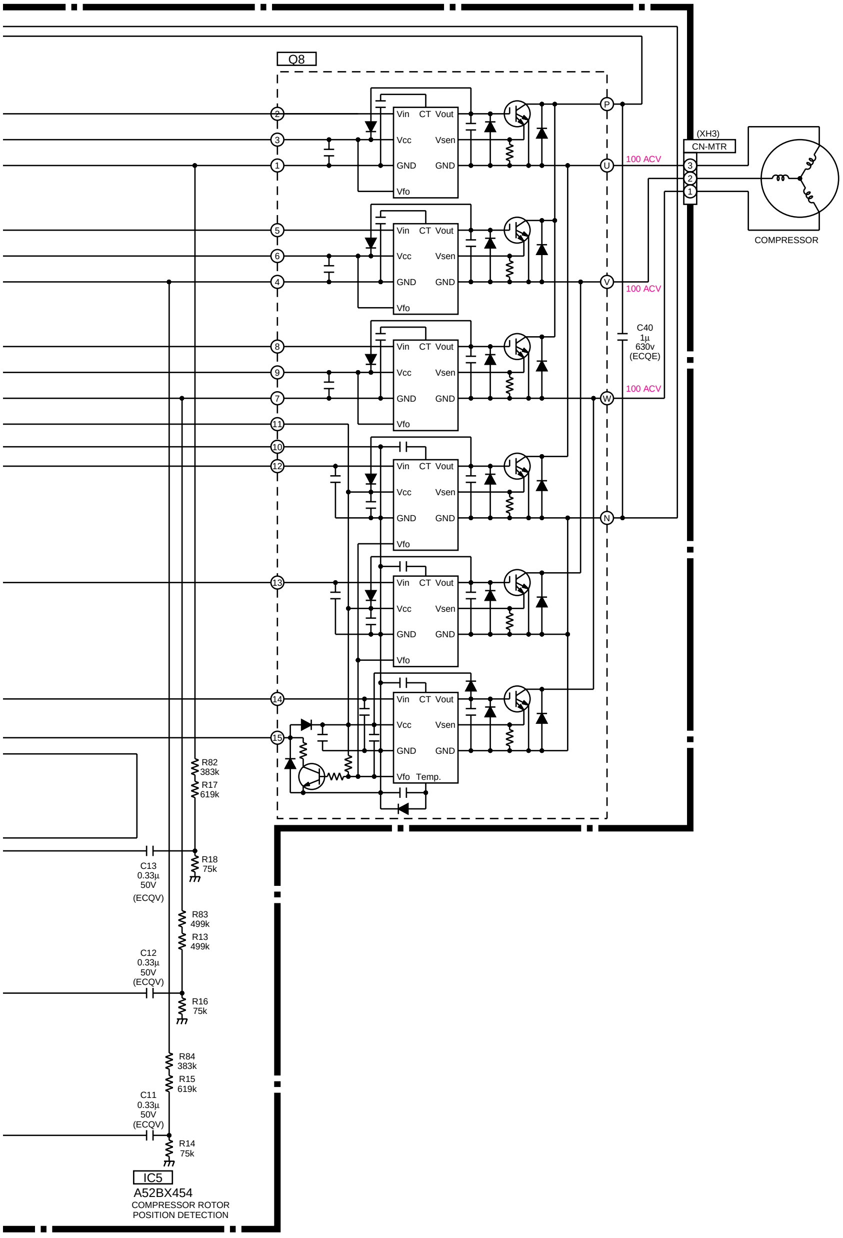
## SCHEMATIC DIAGRAM 1/3


OUTDOOR TERMINAL
AC 230V
AC18-23V
AC230V
FUSE
250V, 20A
DIODE
REACTOR
REACTOR
DIODE
CAPACITOR
FOR CU-G123KE ONLY
C1
C2
PTC
(WHT) AC1
(WHT) AC2
AC3
RY-PWR
CT1
A40260
D11
D14
D12
D13
D16
R48
1.65k
D15
R49
598Ω
VR1
200Ω
C27
220µ
10V
FUSE1
T3 15A L250V
FAN MOTOR
RED
BLU
YEL
CN-FM
C-FM
400V
2µF
CR2
120Ω
0.033µ
CR1
120Ω
0.033µ
RY-FM
OPEN : 145 C
CLOSE : 88 C
SSR1
A56S26MD81M
(BLUE)
(VH-3)
CN-HOT
HOT
C98
0.01µ
IC1
A5278214WC26
R50
10k
IPM
(POWER
TRANSISTOR)
BASE
SIGNAL
OUTPUT
PHOTO COUPLER DRIVE
VOLTAGE DETECTION
HEAT EXCHANGER TEMP.
INTAKE AIR TEMP.
COMP. TEMP.
CURRENT
REF. VOLTAGE
POWER
DATA TRANSMISSION
COMPRESSOR ROTOR POSITION DETECTION
DC. PEAK DC RESET
POWER ON
PHOTO COUPLER DRIVE
RELAY DRIVE
RESET
12MHz OSC
FAN MOTOR DRIVE
4-WAY VALVE
TIMER SHORTEN
GND
R81
1k
R79
10k
R34
620Ω
LED1 (YLW)
A5448YPXTA3E
(YEL)
(XH-4)
CN-TH
PIPE TEMP. SENSOR
(4.96k, 3800)
AIR TEMP. SENSOR
(15k, 3950)
Fig. 1
COMPRESSOR TEMP. SENSOR
(50k, 3975)
Fig. 5
CN-TANK
(NV-2)
Fig. 3
Fig. 3
Fig. 6
Fig. 4
R53
15k
R54
15.8k
R55
4.99k
5V
C31
10µ
16V
C29
10µ
16V
C30
10µ
16V
R51
20.5k
C32
220µ
16V
R52
10k
5V
C46
3.3µ
50V
IC4
78M05
REGULATOR
C18
470µ
10V
C47
0.1µ
(ECQV)
R42
150k
X1
12MHz
30pF X 2
(NH-2)
CN-S
TEST RUN
L2
A43036
C37
22µ
10V
ICX
A52D27C18C
Vcc
CS
DL
GND
Vcc
S1
S0
SCK
C33
470µ
16V
C28
220µ
16V
R56
10k
R52
10k
R57
1k
PC4
A52PS2633E
CN-AC
R66
38k
D19
ERA15-10
R65
51k
C39
22µ
400V
D18
ERA15-06
C37
2200p
50V
R59
680Ω
R60
200k
Q6
UN421F
2.2k
10k
c
b
e
R61
1k
R62
300Ω
PC5
TLP521-1BL
(BL)
R63
7.5k
C38
1000p
(RED)
AC4
C15
1000PF
AC250V
D17
ERA15-06
ZNR1
R64
11k
3W
D20
ERA15-06
RY-PWR
RY-FM
IC2
µPA2003C
R41
470Ω
1W
R75
10k
RA1
10k X 5
R73
5.23k
C24
0.01µ
R43
1k
TEST (NH-2)
L1
A43036
STN-BY
R45
10k
R44
51k
R47
1k
3.4
3.4
3.4
3.4
3.4
3.4
2.8
0
0
5
5
5
2.5
2.5
3.4
2.3
5
0 (5)
2.6
2.6
2.6
5

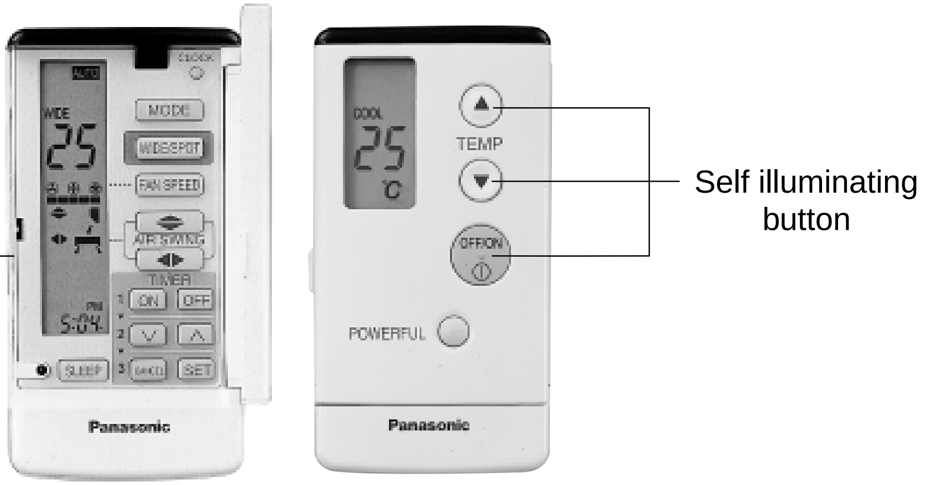
# SCHEMATIC DIAGRAM 2/3


APPROX 280 DCV
DC+
DC-
Q7
UN4116
4.7k
b
e
c
PC6
R35
560Ω
TLP521-IGH
R67
560Ω
C7
270µ
25V
(SXE)
D2
A54RA22-04
T1
A48367
D1
A54AU02ZV8
IC3
A5278M05
REGULATOR
5V
I
O
G
R2
27Ω
3/4W
C2
10µ
25V
C3
100µ
10V
C1
470µ
25V
PC7
R36
560Ω
R68
560Ω
C8
270µ
25V
(SXE)
D3
EBR43-02
FUSE2
T3 15A L250V
R5
680Ω
3W
R4
620k
3/4W
R8
560k
3/4W
R78
56k
3W
C4
470p
1kV AC
R77
56k
3W
D4
EBR43-02
PC8
R37
560Ω
R69
560Ω
C9
270µ
25V
(SXE)
Q1
A55C4420
R21
1.82k
VR2
1k
Q4
UN411F
10k
4.7k
R6
100Ω
3/4W
C5
0.033µ
(ECQM)
ZD1
A54D6.2
EB1
D6
A541SS136
D5
A54RA22-04
PC9
R38
560Ω
R70
560Ω
C10
270µ
25V
(SXE)
C6
100µ
50V
(SXE)
R7
330Ω
R3
1Ω
VOLTAGE
DETECTION
PC12
R80
4.7k
IC8
TLP521-I
R12
510k
R22
2.55k
R1
5.23k
C14
0.01µ
R71
560Ω
PC10
R39
560Ω
IC8
A52MPC339C
IC6
A52AN78L10
REGULATOR
10V
C17
22µ
25V
(SXE)
D9
EBR12-01
C19
120µ
25V
C21
10µ
25V
R10
118Ω
1W
C20
120µ
50V
C22
10µ
25V
D8
A54RA22-04
D10
EBR12-01
IC7
A52AN79L10
REGULATOR
PC13
R28
4.7k
PC11
R40
560Ω
R72
560Ω
R19
750k
R9
4.53k
R11
5.23k
C16
0.01µ
R32
1k
PC3
TLP521-I
DC PEAK
C23
1000P
PC1
DC RESET
R30
15k
R33
18k
C25
1000P
R31
10k
C48
0.01µ
Q5
C1740S
R76
4.7k
R74
240k
R23
R25
3.6k
R26
3.6k
R24
3.6k
1000p x 3
C34
C35
C36
R46
2.2k
C26
2200p
PC2
A52LP521-3
1.5k x 3
R27
R28
R29
989k
0.1 (ECQB)
1M
3k
33k
1000P
47.5k
23.2k

# SCHEMATIC DIAGRAM 3/3


Q8
Vin
CT
Vout
Vcc
Vsen
GND
Vfo
Temp.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
P
U
V
W
N
100 ACV
100 ACV
100 ACV
C40
1µ
630v
(ECQE)
(XH3)
CN-MTR
3
2
1
COMPRESSOR
R82
383k
R17
619k
C13
0.33µ
50V
(ECQV)
R18
75k
R83
499k
R13
499k
C12
0.33µ
50V
(ECQV)
R16
75k
R84
383k
R15
619k
C11
0.33µ
50V
(ECQV)
R14
75k
IC5
A52BX454
COMPRESSOR ROTOR
POSITION DETECTION

## Remote Control


CLOCK
MODE
WIDE/SPOT
FAN SPEED
AIR SWING
TIMER
ON
OFF
SLEEP
CANCEL
SET
AUTO
WIDE
25
PM
5:04
Panasonic
COOL
25
°C
TEMP
OFF/ON
POWERFUL
Panasonic
Self illuminating button

OFF / ON ⏻

### Operation OFF / ON

### Operation Mode Selection

| | |
|---|---|
| • **AUTO** | Automatic Operation Mode |
| • HEAT | Heating Operation Mode |
| • COOL | Cooling Operation Mode |
| • DRY | Soft Dry Operation Mode |
| • FAN | Fan Operation Mode |

POWERFUL

### Powerful Mode Operation

FAN SPEED

### Indoor Fan Speed Selection

| | |
|---|---|
| • ✇ ✇ ✇ ■ | Low |
| • ✇ ✇ ✇ ■■ | Medium⁻ |
| • ✇ ✇ ✇ ■■■ | Medium |
| • ✇ ✇ ✇ ■■■■ | Medium⁺ |
| • ✇ ✇ ✇ ■■■■■ | High |
| • AUTO FAN | Automatic Fan Speed |

▲▼ AIR SWING ◀▶

### Airflow Direction Control

- Vertical Airflow Direction Control

| | |
|---|---|
| ▲▼ AUTO | Automatic Control |
| ▮ | Manual Control |

- Horizontal Airflow Direction Control

| | |
|---|---|
| AUTO ◀▶ | Automatic Control |
| ▬ | Manual Control |

TEMP.

### Room Temperature Setting

- Temperature Setting (16°C to 30°C)

TIMER
ON OFF

### Timer Operation Selection

- 24-hour, OFF / ON Real Timer Setting.

∨
∧

### Time / Timer Setting

- Hours and minutes setting.

SET
CANCEL

### Timer Operation Set / Cancel

- ON Timer and OFF Timer setting and cancellation.

CLOCK

### Clock Setting

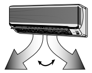
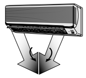
- Current time setting.

SLEEP

### Sleep Mode Operation OFF / ON

WIDE /
SPOT

### WIDE / SPOT

-  WIDE Horizontal Airflow Direction
-  SPOT Horizontal Airflow Direction

## Indoor Unit

## FOR ALL OPERATIONS

AUTO
OFF / ON

**Automatic Switch**

- Press for < 5s to operate Automatic Operation Mode.
  (Used when the remote control cannot be used.)
- Press continuosly for 5s or < 8s to operate Forced Cooling Operation at compressor rated frequency:
  50 Hz (CS-G95KE); 70 Hz (CS-G125KE)
- Press continuosly for 8s or < 11s to operate Forced Heating Operation at compressor rated frequency:
  71 Hz (CS-G95KE); 90 Hz (CS-G125KE)
- Press continuosly for 11s or < 16s to switch over Remote Control A↔B Switch Signal.
- Press continuosly for 16s or < 21s to switch OFF / ON Remote Control Receiving Sound and H14 Abnormality Detection Mode.

**Operation Indication Lamps (LED)**

- POWER (Green) ........ Lights up in operation, blinks in Automatic Operation Mode judging and Hot Start operation.
- TIMER (Orange) ....... Lights up in Timer Setting.
  Blinks in Self Diagnosis Control.
- SLEEP (Orange)........ Lights up in Sleep Mode Operation.
- POWERFUL (Orange) .. Lights up when Powerful Mode is selected.

**Power Monitor Display ※**

- Lights up during compressor operation.

**Operation Mode**

- Automatic, Heating, Cooling, Soft Dry and Fan Operation.

**Automatic Restart Control ※**

- Operation is restarted after power failure at previous setting mode.

**Sleep Operation Mode ※**

**Timer Operation ※**

**Powerful Mode ※**

- For quick cooling or heating.

**Indoor Fan Speed Control ※**

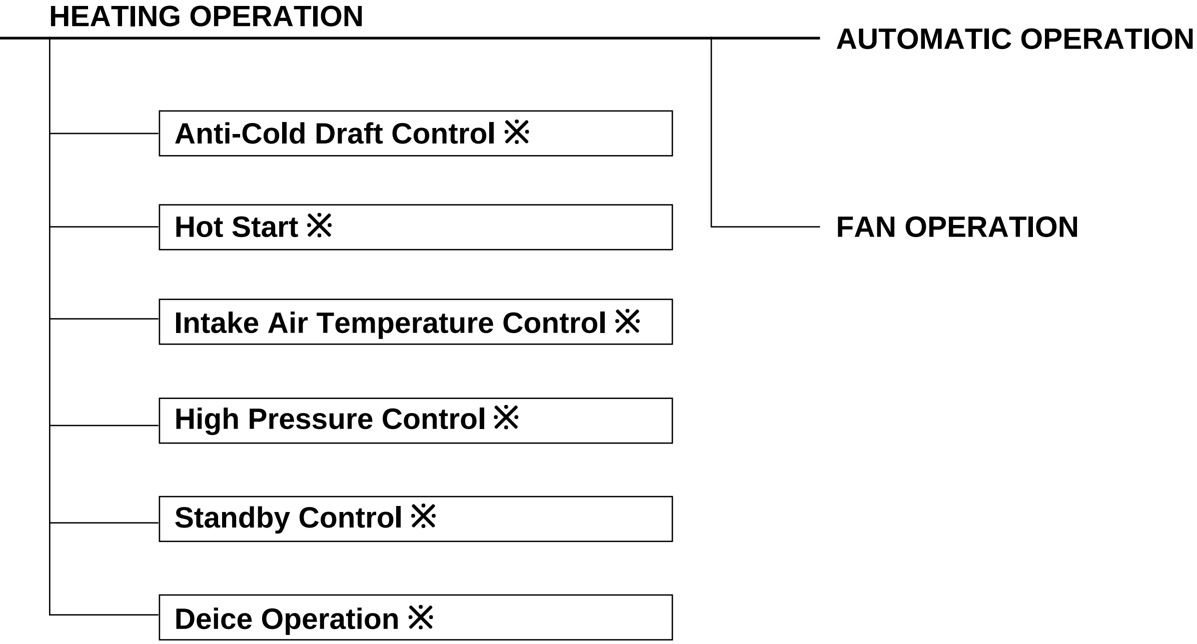
**Airflow Direction Control ※**

## COOLING / SOFT DRY OPERATION

- **Room Temperature Control ※**

| Operation Mode | Compressor Operation Frequency | |
|---|---|---|
| | CS-G95KE | CS-G125KE |
| Cooling | 15 – 64 Hz | 15 – 92 Hz |
| Soft Dry | 15 – 22 Hz | 15 – 22 Hz |
| Heating | 15 – 99 Hz | 15 – 115 Hz |

- **Temperature Shift ※**
- **Self Diagnosis ※**
- **Low Pressure Control ※ (Gas Leakeage Detection)**
- **Low / High Power Supply Voltage Protection ※**
- **Indoor Power Relay Control ※**
- **Deodorizing Control ※**
- **Sensible Heat Control ※**
- **Anti-Fog Discharge Control ※**
- **Anti-Dew Formation Control ※**
- **Anti Freezing Control ※**
- **Quiet Operation ※**


HEATING OPERATION
Anti-Cold Draft Control ※
Hot Start ※
Intake Air Temperature Control ※
High Pressure Control ※
Standby Control ※
Deice Operation ※
AUTOMATIC OPERATION
FAN OPERATION

## Outdoor Unit

Panasonic
INVERTER

**Outdoor Fan Motor**

- 6 poles induction motor, 1 speed.

**Time Delay Safety Control ※**

**Forced Operation 30 seconds ※**

**High Pressure Control ※ (For Cooling / Soft Dry)**

**DC Peak ※**

**Total Running Current Control ※**

**Compressor Overheating Protection ※**

**IPM (Power Transistor) Overheating Protection ※**

**Low Frequency Operation Protection ※**

**Mininum Frequency Operation Protection ※**

**Outdoor Air Temperature Control ※**

- Detect outdoor ambient temperature and limits compressor operating frequency.

**Standby Control ※**

**Deice Operation ※**

※ Details can be refered to OPERATION DETAILS in this manual.

# SAFETY PRECAUTIONS

## Before operating, please read the following “Safety Precautions” carefully.

To prevent personal injury, injury to others and property damage, the following instructions must be followed.

- Incorrect operation due to ignoring of instructions will cause harm or damage, the seriousness of which is classified as follows:

| | | |
|---|---|---|
| ⚠ | **Warning** | : This sign warns of death or serious injury. |
| ⚠ | **Caution** | : This sign warns of injury or damage to property. |

- The instructions to be followed are classified by the following symbols:

| | |
|---|---|
| ⊘ | This symbol (with a white background) denotes an action that is PROHIBITED. |
| ● ● ● | These symbols (with a black background) denotes an action that is COMPULSORY. |

## Installation precautions

### ⚠ Warning

- **Do not install, remove and reinstall the unit yourself.**
  Improper installation will cause leakage, electric shock or fire. Please consult an authorized dealer or specialist for the installation work.

### ⚠ Caution

- **This room air conditioner must be earthed.**

  ● Improper grounding could cause electric shock.

- **Do not install the unit in a place where there may be explosive gas leaks.**

  ⊘ Gas leaks near the unit could cause fires.

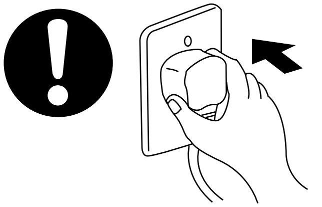
- **Ensure that drainage piping is connected properly.**

  ● Otherwise, water will leak out.

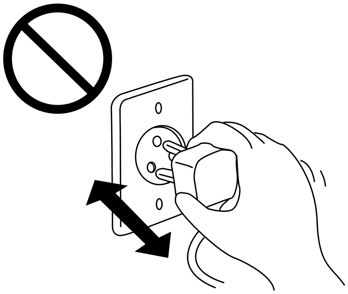
# Operation precautions

## Warning

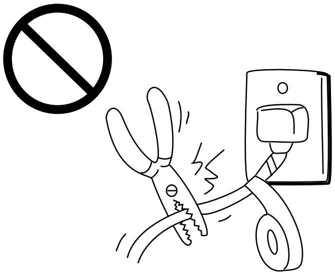
- **Insert the power plug properly.**
  Heat generated by a loose power plug could cause electric shock or fire.
  Electrical outlet and power plug shall be easily accessible.



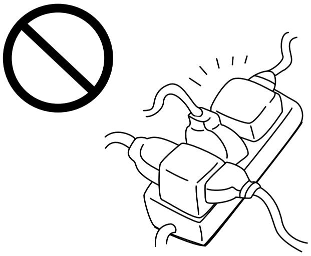
- **Do not operate or stop the unit by inserting or pulling out the power plug.**
  It could cause electric shock or fire.



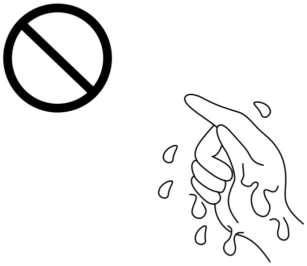
- **Do not damage the power cord or use an unspecified power cord.**
  A damaged/unspecified power cord could cause electric shock or fire.



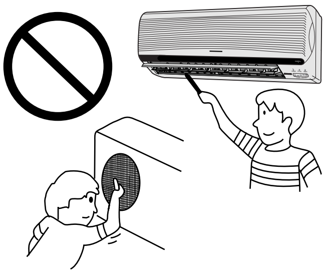
- **Do not modify the length of the power cord or use an extension cord.**
  It could cause electric shock or fire.



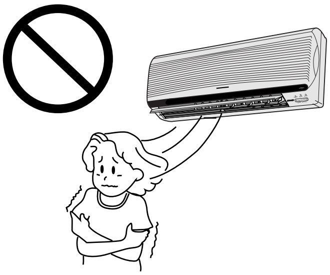
- **Do not operate the unit with wet hands.**
  It could cause an electric shock.



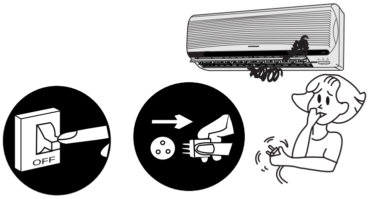
- **Do not insert finger, sticks or other objects into the units.**
  It could lead to physical injury and cause damage to the units.



- **Do not be directly exposed to the cold airstream for too long.**
  It could lead to health problems.



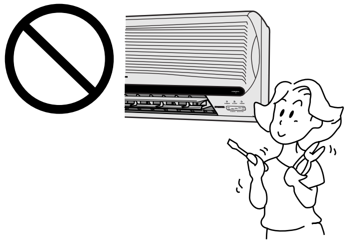
- **If there is a smell of burning, stop the air conditioner and disconnect the power supply.**
  Please consult an authorized dealer or service center.



Switch off the breaker.

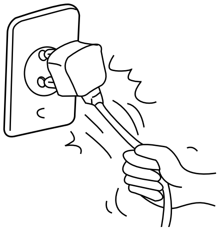
Disconnect the power plug.

- **Do not try to repair the unit yourself.**
  It could lead to fire or cause an electric shock. Please call an authorized dealer or service center.

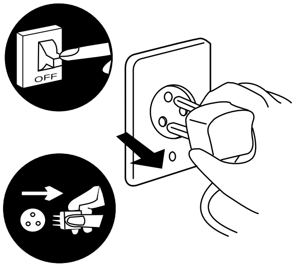


# Caution

- **Do not remove the power plug by pulling the cord.**
  Hold the plug when disconnecting the plug from the wall outlet.



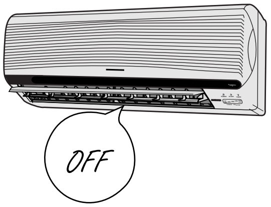
- **Switch off the power supply if the unit is not going to be used for a long period of time.**
  If dust accumulates on the plug, it will generate heat and this could cause a fire.



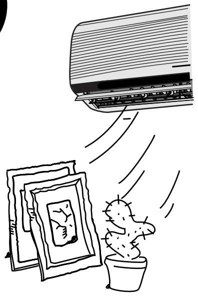
Switch off the breaker.

Disconnect the power plug.

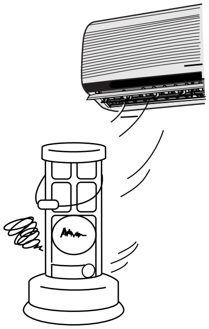
- **When cleaning the unit, remove the plug.**
  This is to prevent injury due to the rotating fan in the unit.



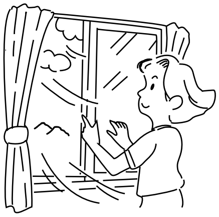
- **Do not use for other purposes.**
  Do not use for preservation purposes. It will affect food quality, animals or plants.



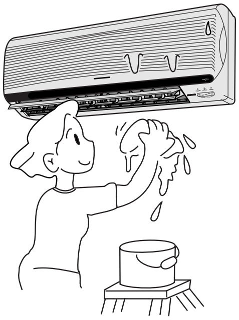
- **Do not place combustor in the path of the airflow from the unit.**
  Incomplete combustion could cause toxic gas (CO) poisoning.



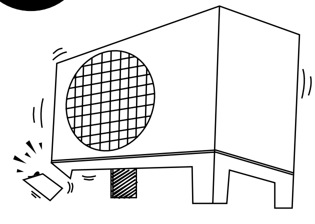
- **Ventilate the room regularly.**
  Since windows are kept closed, it does good to open them periodically to ventilate the room.



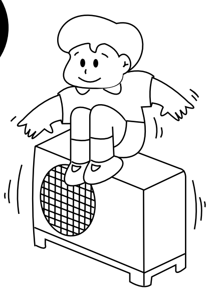
- **Do not wash the unit with water.**
  It could cause an electric shock.



- **Inspect the unit for any damage.**
  Ensure that the necessary repairs are carried out.

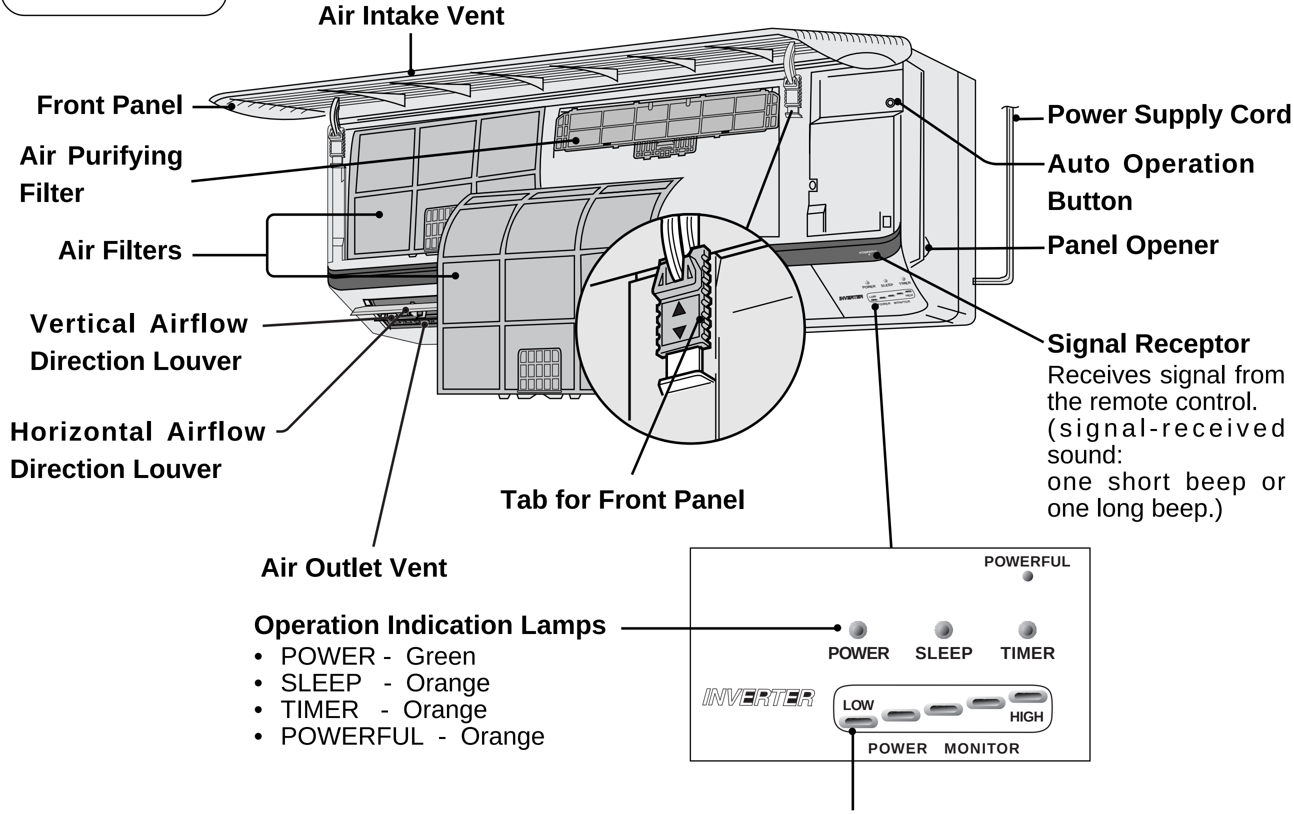


- **Do not sit or place anything on the outdoor unit.**
  You might fall off or the unit might collapse.



# Name of Each Part for Inverter Aided Air Contioner

## Indoor unit

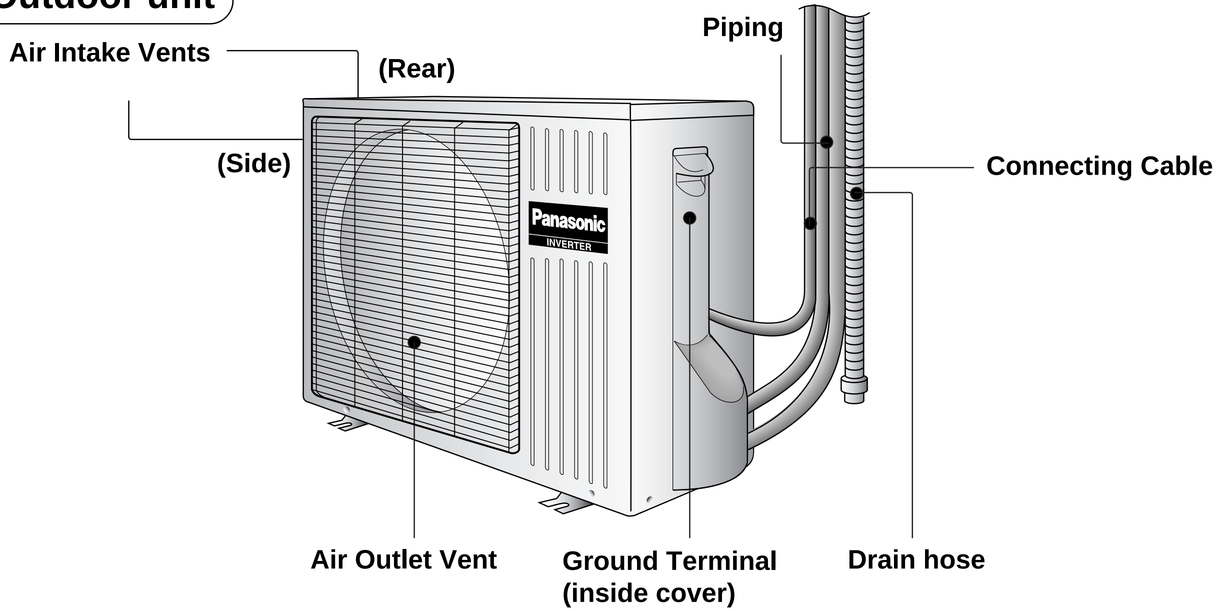

Air Intake Vent
Front Panel
Air Purifying Filter
Air Filters
Vertical Airflow Direction Louver
Horizontal Airflow Direction Louver
Tab for Front Panel
Air Outlet Vent
Power Supply Cord
Auto Operation Button
Panel Opener
POWERFUL
POWER
SLEEP
TIMER
INVERTER
LOW
HIGH
POWER MONITOR

**Signal Receptor**
Receives signal from the remote control. (signal-received sound: one short beep or one long beep.)

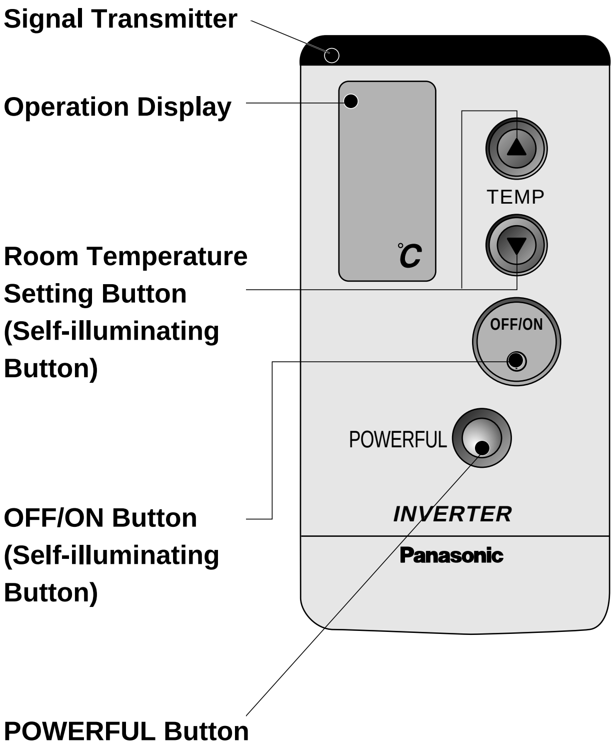
**Operation Indication Lamps**
- POWER - Green
- SLEEP - Orange
- TIMER - Orange
- POWERFUL - Orange

**Power Monitor Lamps**
- Lights up from LOW to HIGH to show the compressor operating condition
- Light off when then compressor stops

## Outdoor unit


Air Intake Vents
(Rear)
(Side)
Piping
Connecting Cable
Panasonic
INVERTER
Air Outlet Vent
Ground Terminal (inside cover)
Drain hose

## Remote control

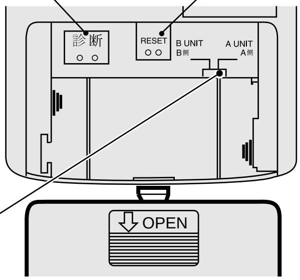

Signal Transmitter
Operation Display
Room Temperature Setting Button (Self-illuminating Button)
OFF/ON Button (Self-illuminating Button)
POWERFUL Button
TEMP
°C
OFF/ON
POWERFUL
INVERTER
Panasonic

### When back cover is open

**Diagnostic Terminals**

To be used by the service technician only.

**Reset points**


診断
RESET
B UNIT
B側
A UNIT
A側
OPEN

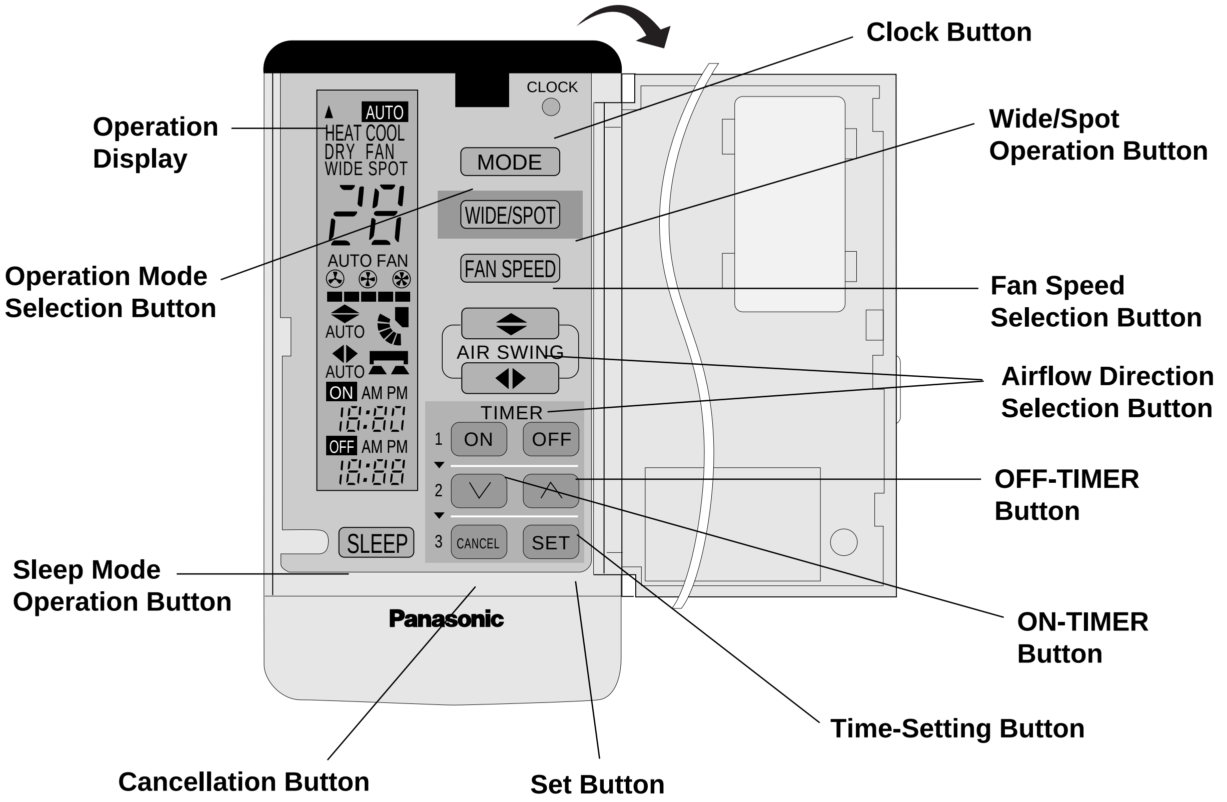
**Signal [B ↔ A] Switch**

To be set to A.

When two units are installed in the same room.

Consult your dealer.

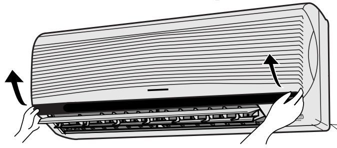
### Open the remote control door


Clock Button
Wide/Spot Operation Button
Fan Speed Selection Button
Airflow Direction Selection Button
OFF-TIMER Button
ON-TIMER Button
Time-Setting Button
Set Button
Cancellation Button
Sleep Mode Operation Button
Operation Mode Selection Button
Operation Display
CLOCK
AUTO
HEAT COOL
DRY FAN
WIDE SPOT
28
AUTO FAN
AUTO
AUTO
ON AM PM
18:88
OFF AM PM
18:88
MODE
WIDE/SPOT
FAN SPEED
AIR SWING
TIMER
1
ON
OFF
2
3
CANCEL
SET
SLEEP
Panasonic

# Preparation (Indoor Unit • Remote Control)

## Indoor Unit

**1** **Insert the power supply plug into an electrical outlet and open the front panel.**

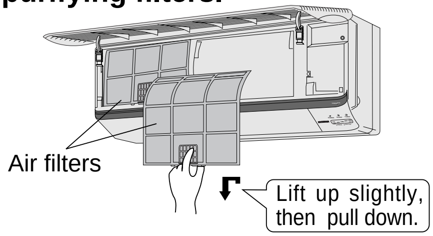


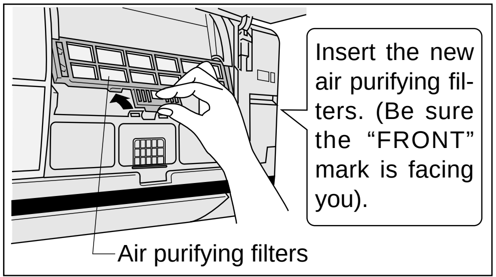
Hold the panel openers and pull.

**Warning**

- **Ensure that the power supply plug is securely inserted.**
  A loose plug may cause a fire or an electric shock.

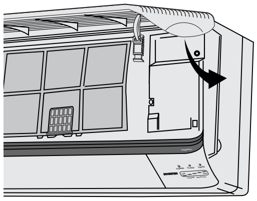
**2** **Remove the air filters and insert the air purifying filters.**





Insert the new air purifying filters. (Be sure the "FRONT" mark is facing you).

**3** **Insert the air filters and close the front panel.**



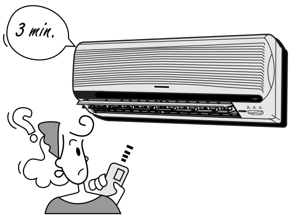
Use under the following conditions:

Unit in °C

| DBT: Dry Bulb Temperature<br>WBT: Wet Bulb Temperature | | | Max. Temperature | Min. Temperature |
|---|---|---|---|---|
| COOLING | Indoor | DBT | 32 | 16 |
| | | WBT | 23 | 11 |
| | Outdoor | DBT | 43 | 16 |
| | | WBT | 26 | 11 |
| HEATING | Indoor | DBT | 30 | 2 |
| | | WBT | – | – |
| | Outdoor | DBT | 24 | –5 |
| | | WBT | 18 | –6 |

## Notes

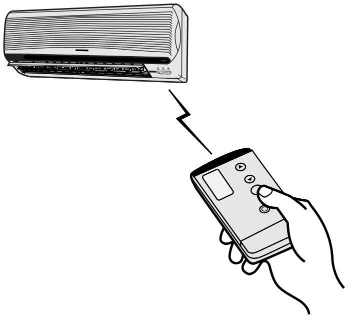
- If the unit is not going to be used for an extended period of time, turn off the Power Supply. If it is left at the ON position, approximately 2.8 W of electricity will be used even if the indoor unit has been turned off with the remote control. When standby mode is activated, approximately 35 W of electric power will be consumed on the heat of compressor to warm up the room quickly. This mode can be switched off if you do not require it. Please consult your dealer.
- If operation is stopped, then restarted immediately, the unit will resume operation only after 3 minutes.



# Remote control

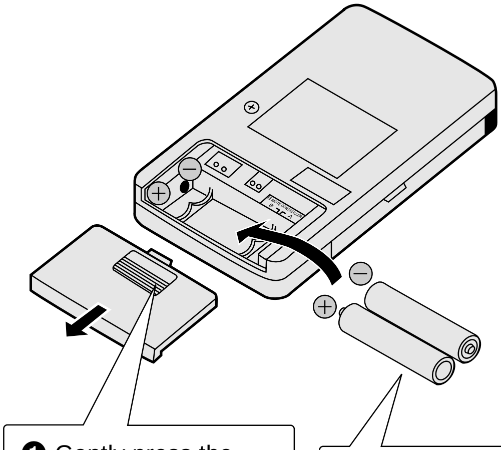
## Operating the remote control

- The maximum distance at which signals can be received is about 10 m.
- Aim the remote control at the signal receptor on the room air conditioner when operating.
- Make sure that the signal path is not obstructed.



## Inserting batteries

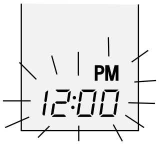
**(2 pcs R03 dry-cell batteries)**



❶ Gently press the place marked (OPEN) and slide the cover towards you.

❷ Be sure that the ⊕ and ⊖ directions are correct.

- Confirm that the display is flashing 12:00 PM. If the display does not appear when the batteries are inserted, remove them and re-insert.



- To prevent battery exhaustion , set the current time (CLOCK) immediately.

### Batteries

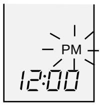
The batteries can be used for approximately one year.

**Observe the following when replacing the batteries**

- Replace the batteries with 2 new batteries of the same type.
- Do not use rechargeble batteries (Ni-Cd), because they are different from standard dry-cell batteries in shape, dimensions and performance.
- If the unit is not going to be used for an extended period of time, remove the batteries from the remote control.

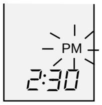
## Setting the clock

**1 Press the Clock button.**



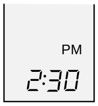
PM flashes and 12:00 lights up.

**2 Press (∨) or (∧) to set the current time.**



Press (∧) continuously for fast forwarding and (∨) for fast reversing.

**3 Press the Clock button.**

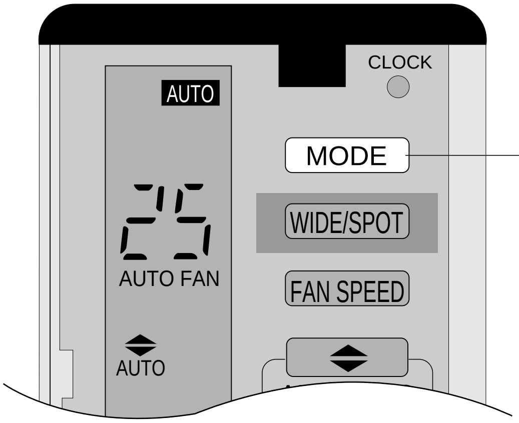


AM or PM lights up.

### Notes

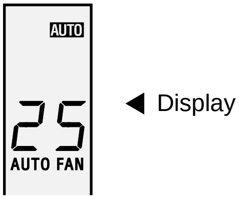
- Do not throw or drop the remote control. Do not let it get wet.
- Certain types of fluorescent lamps may affect signal reception. Consult your dealer.

# Automatic • Heating • Cooling • Soft Dry • Fan

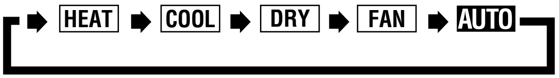

CLOCK
AUTO
25
AUTO FAN
AUTO
MODE
WIDE/SPOT
FAN SPEED

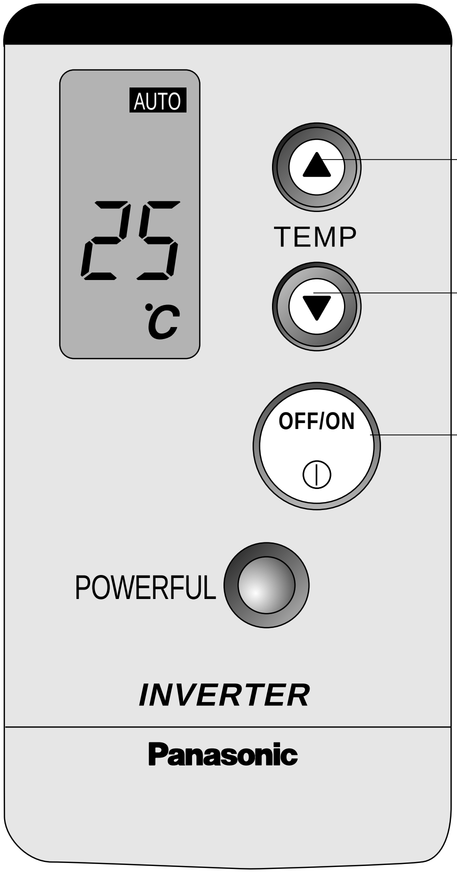
## 1

**Press MODE to select the desired operation**


AUTO
25
AUTO FAN
Display

When pressed, the display changes in this order.

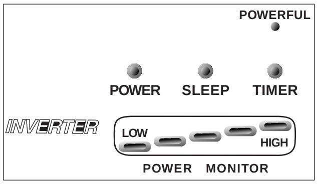

HEAT
COOL
DRY
FAN
AUTO


AUTO
25
°C
TEMP
OFF/ON
POWERFUL
INVERTER
Panasonic

## 2

**Press OFF/ON Button**

The Power LED lights up. (LED blinks when the room temperature is low at the start of heating or operation mode is selected during Automatic Operation.)
The power monitor lamps light up to show the compressor operating condition.


POWERFUL
POWER
SLEEP
TIMER
INVERTER
LOW
HIGH
POWER MONITOR

## 3

**To set the temperature**

- Increases or decreases by 1°C when pressed.
- The temperature can be set between 16°C and 30°C. (Not adjustable during Fan Operation.)

Recommended temperature:
Heating : 20 ~ 24°C
Cooling : 26 ~ 28°C
Soft Dry : Approx. room temperature

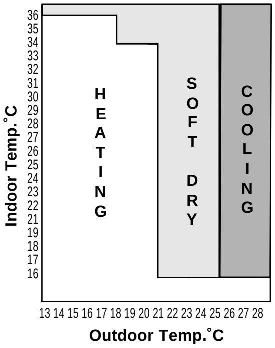
**Press OFF/ON Button again to stop operation**
**(POWER LED lights off).**

## Auto Restart Control

- If there is a power failure, operation will be automatically restarted under the previous operation mode and airflow direction when power is resumed. (When the operation is not stopped by remote control).
- If you do not want the unit to restart automatically when power is resumed, switch off the power supply.
- If you do not require Auto Restart Control, consult your dealer.
- Auto Restart Control is not available when Timer or Sleep Mode is set.

## Automatic Operation

- At the start of the Automatic operation, Heating, Cooling or Soft Dry is automatically selected according to the outdoor temperature, indoor temperature and setting temperature.
- The operation mode changes every half hour, when necessary.



## Heating Operation

- To warm up the room temperature upon your preference setting temperature.
- Heat is obtained from outdoor air to warm up the room. When the outdoor ambient air temperature falls, the heating capacity of the unit might be reduced. We recommend that you use an additional heating device when the outdoor ambient air temperature is low.

## Cooling Operation

- To cool the room temperature upon your preference setting temperature.

## Fan Operation

- Circulates air throughout the room.
- Purifies and deodorizes the air if the air purifying filter is used. Fan Operation is recommended during seasons in which neither Heating nor Cooling is used.

## Soft Dry Operation

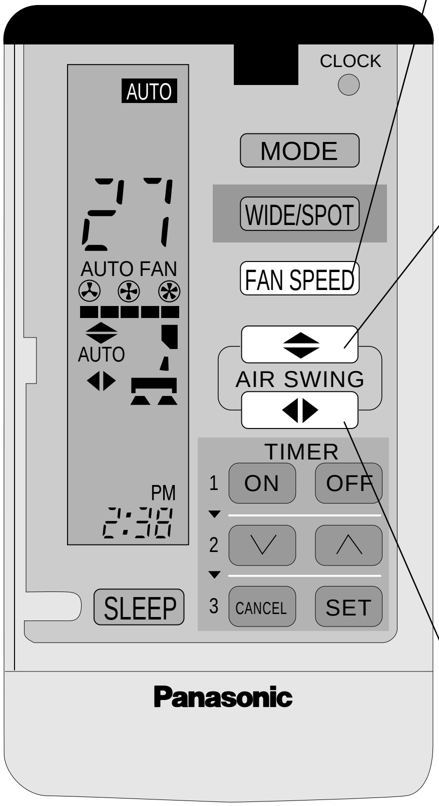
- Dehumidifies while maintaining the setting temperature. The Soft Dry Operation is recommended during the rainy season.
- If the room temperature exceeds the setting temperature, operation switches to Cooling.
- The fan speed is rather slow during Soft Dry Operation.
- The humidity may not decrease when the indoor temperature is lower than the setting temperature on the remote control.

## Notes

- See page 12 on how to adjust the fan speed and airflow direction.
- The Powerful and Sleep modes can be set during Automatic Operation.

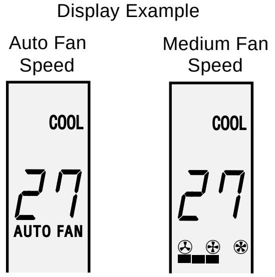
# Adjusting Airflow Direction and Fan Speed

**Proper adjustment of airflow direction and fan speed increases operation effectiveness.**


CLOCK
AUTO
27
MODE
WIDE/SPOT
FAN SPEED
AUTO FAN
AUTO
AIR SWING
TIMER
1 ON OFF
2
3 CANCEL SET
PM
2:38
SLEEP
Panasonic

## To adjust fan speed

### Press FAN SPEED Button


Display Example
Auto Fan Speed
Medium Fan Speed
COOL
27
AUTO FAN
COOL
27

- There are five stages of fan speed in addition to Auto Fan Speed.

### ■ Auto Fan Speed Control

**Heating**

When the temperature of the discharge air increases, the fan speed increases.

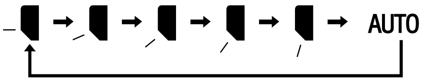
**Cooling ● Soft Dry**

Changes the fan speed to generate a cool breeze. The air starts to blow out approximately 40 seconds after the start of Cooling or Soft Dry.

## To adjust the vertical airflow direction louvers

### Press ⇕ Button

- There are five angles of vertical direction in addition to Auto Airflow Direction.



The display changes when the ⇕ button is pressed.
(The display indicates airflow direction.)

### ■ Auto Vertical Airflow Direction Control

**Heating**

When the discharge air temperature is low such as at starts of heating operation, the air blows at horizontal level.
As the temperature rises, the hot air blows in a downwards direction.

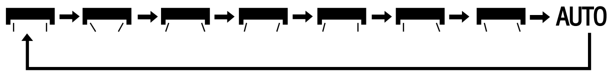
**Cooling ● Soft Dry**

The louver swings up and down automatically.

## To adjust the horizontal airflow direction louvers

### Press ◀▶ Button

- There are seven positions of the horizontal airflow direction louvers in additional to Auto Airflow Direction.



The display changes when the ◀▶ button is pressed.
(The display does not show the exact directions of airflow or the exact louver angles.)

### ■ Auto Horizontal Airflow Direction Control

**Heating**

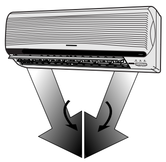
When air temperature is low, air is sent in WIDE. When temperature goes up, air comes out in SPOT.

**Cooling ● Fan**

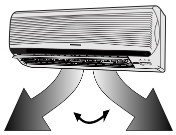
Louvers swing horizontally at a fixed speed.

**Soft Dry**

Louvers are fixed to WIDE.

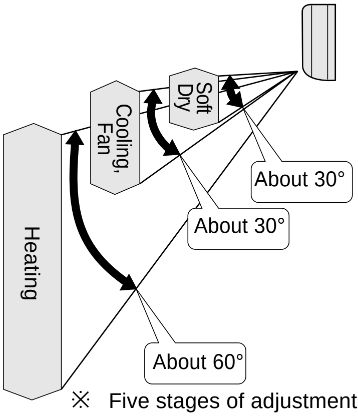


SPOT



WIDE

## Louver adjustment range


Soft Dry
Cooling, Fan
Heating
About 30°
About 30°
About 60°

※ Five stages of adjustments can be made in this range.

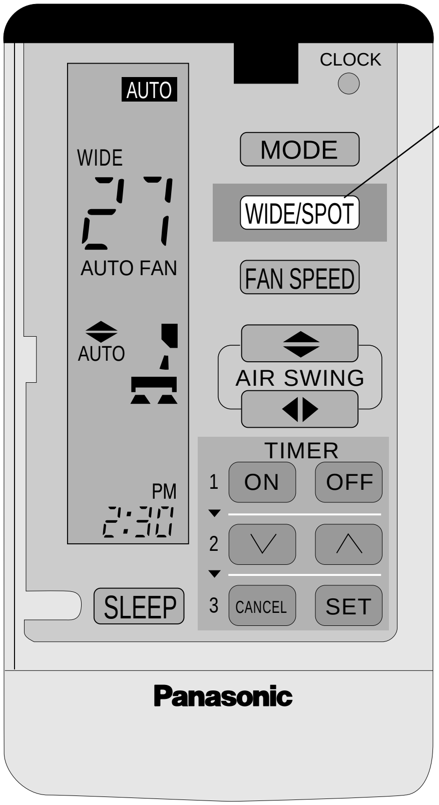
- The adjustment range is different for each operation i.e. Heating, Cooling and Soft Dry. (Fig. at left)
- The angle indicated on the remote control is different from that on the indoor unit.
- The louver angle automatically changes to prevent condensation during Cooling and Soft Dry.
- When operation stops, the louver automatically closes.

## Notes

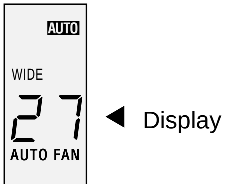
- Do not adjust the vertical airflow direction louver downward during Cooling and Soft Dry. Drops of water may condense on the air outlet vent and drip down.
- Use the remote control to change the vertical airflow direction louver. Using your hands to adjust the direction may cause the louver to malfunction. If this happens, stop operation immediately and restart.

## WIDE / SPOT

### Convenient control of horizontal airflow direction.

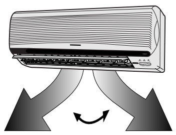

CLOCK
AUTO
WIDE
27
AUTO FAN
AUTO
PM
2:30
MODE
WIDE/SPOT
FAN SPEED
AIR SWING
TIMER
1 ON OFF
2
3 CANCEL SET
SLEEP
Panasonic

- **Press WIDE/SPOT button to select WIDE or SPOT airflow direction.**

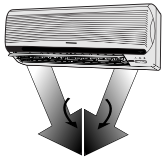

AUTO
WIDE
27
AUTO FAN
Display

When pressed, the display changes in this order.

→ **WIDE** → **SPOT** → **Horizontal Manual Airflow Direction**



WIDE

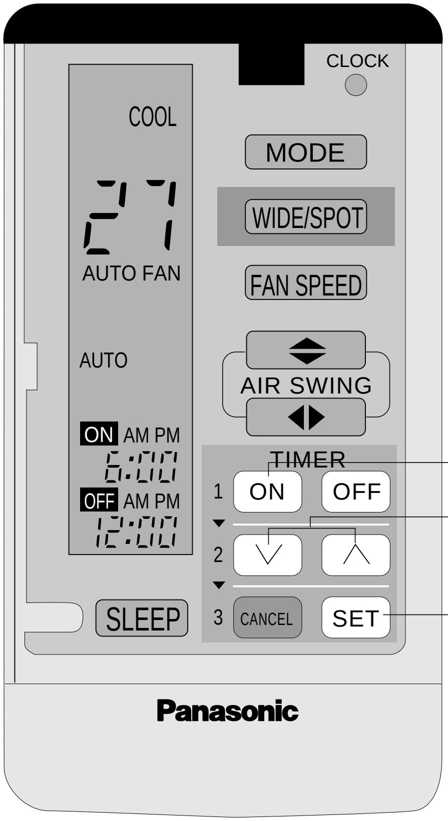


SPOT

- **To cancel WIDE or SPOT, press ◀▶.**

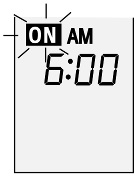
## Setting the Timers

**Set the ON to the time at which you want heating or cooling to begin. Set the OFF to the desired stop time. Use both timers together for maximum comfort and efficiency.**


CLOCK
COOL
27
AUTO FAN
AUTO
ON AM PM
6:00
OFF AM PM
12:00
MODE
WIDE/SPOT
FAN SPEED
AIR SWING
TIMER
1
ON
OFF
2
∨
∧
3
CANCEL
SET
SLEEP
Panasonic

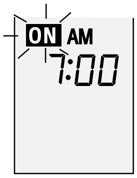
### 1 Press ON Button

Display Ex: Set the ON timer for 7:00AM.

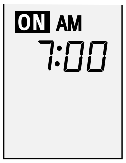


### 2 Press ∨ or ∧ to set the time

- Increases or decreases by 10 minutes. Press continuously to reach the desired setting time quickly.

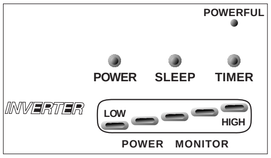


### 3 Press SET Button



### ■ To set OFF-Timer

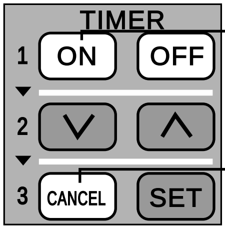
Press OFF and follow steps 2 and 3.


POWERFUL
POWER
SLEEP
TIMER
INVERTER
LOW
HIGH
POWER MONITOR

(TIMER LED on the indoor unit lights up.)

### ■ To cancel the timer

(Ex) Cancel ON timer.


TIMER
1
ON
OFF
2
∨
∧
3
CANCEL
SET

### 1 Press ON Button

### 2 Press CANCEL Button

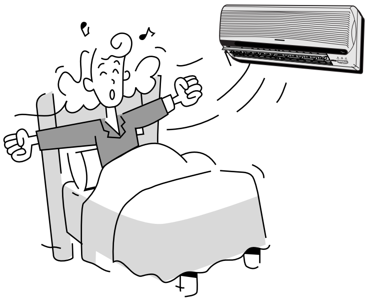
(TIMER LED on the indoor unit lights off.)

### ● When you sleep

Setting OFF timer

Set the time at which you will go to sleep with the **OFF**.
This prevent wasting of electricity.

### ● When you wake up



Set the time at which you will wake up with the **ON**.
You can start the new day at a comfortable temperature.

### ● When going out

Set the time at which you will go out with the **OFF**.
Set the time at which you will come back with the **ON**.
This will prevent the air conditioner from being left on while you are out, and the temperature will be pleasant when you return.

### ● When you return

I'm back
Comfortable temperature

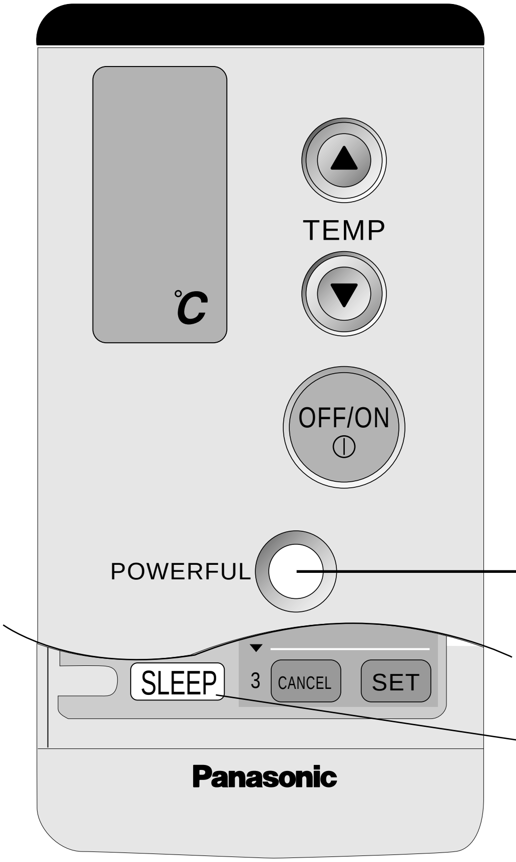
Set the time at which you will return with the **ON**.
Set the time at which you will go to sleep with the **OFF**.
This will make the temperature pleasant when you return, and it will prevent the air conditioner from being left on.

## Timer

- When the ON-Timer is set, operation will start before the actual set time. This is to allow the room temperature to reach the setting temperature by the setting time (maximum of 45 minutes in advance).
- Once the ON-Timer is set, operation will start at the setting time everyday.
- The current time is not displayed when the timers are set.
- When both timers are used together the TIMER LED on the indoor unit remains lit even if the operation is stopped by the OFF-Timer.

# Powerful • Sleep

**Powerful and Sleep modes are available for Automatic Operation, Heating, Cooling and Soft Dry.**


TEMP
°C
OFF/ON
POWERFUL
SLEEP
3
CANCEL
SET
Panasonic

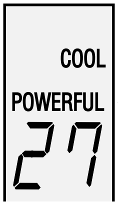
## Powerful mode operation

- Used in winter to warm yourself quickly upon returning home (Heating + Powerful).
- Used in summer to cool yourself after a hot bath (Cooling + Powerful).

### Press POWERFUL during operation

### ■ To cancel

Press POWERFUL again.
(The Powerful display on the remote control disappears.)


COOL
POWERFUL
27

◀ Display

### Note

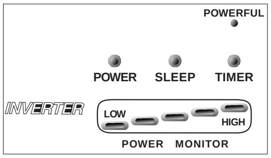
- The setting temperature and the fan speed changes automatically in order to heat, cool or dehumidify the room quickly.

| Operation | | Temperature | Fan Speed |
|---|---|---|---|
| Automatic | Heating | 6°C higher | Slightly stronger |
| | Cooling | 4°C lower | |
| | Soft Dry | 3°C lower | |

## Sleep mode operation

Prevents overheating and overcooling during sleep. Stops automatically after 8 hours.

### Press SLEEP during operation

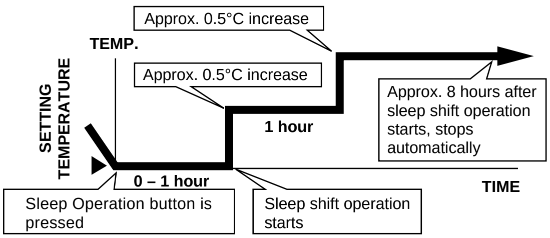

POWERFUL
POWER
SLEEP
TIMER
INVERTER
LOW
HIGH
POWER MONITOR

(SLEEP LED on indoor unit lights up.)
Not displayed on remote control.

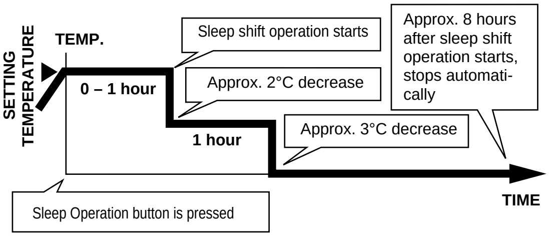
### ■ To cancel

Press **SLEEP** again. (SLEEP LED on indoor unit lights off.)

**COOLING & SOFT DRY OPERATION**



**HEATING OPERATION**



### Notes

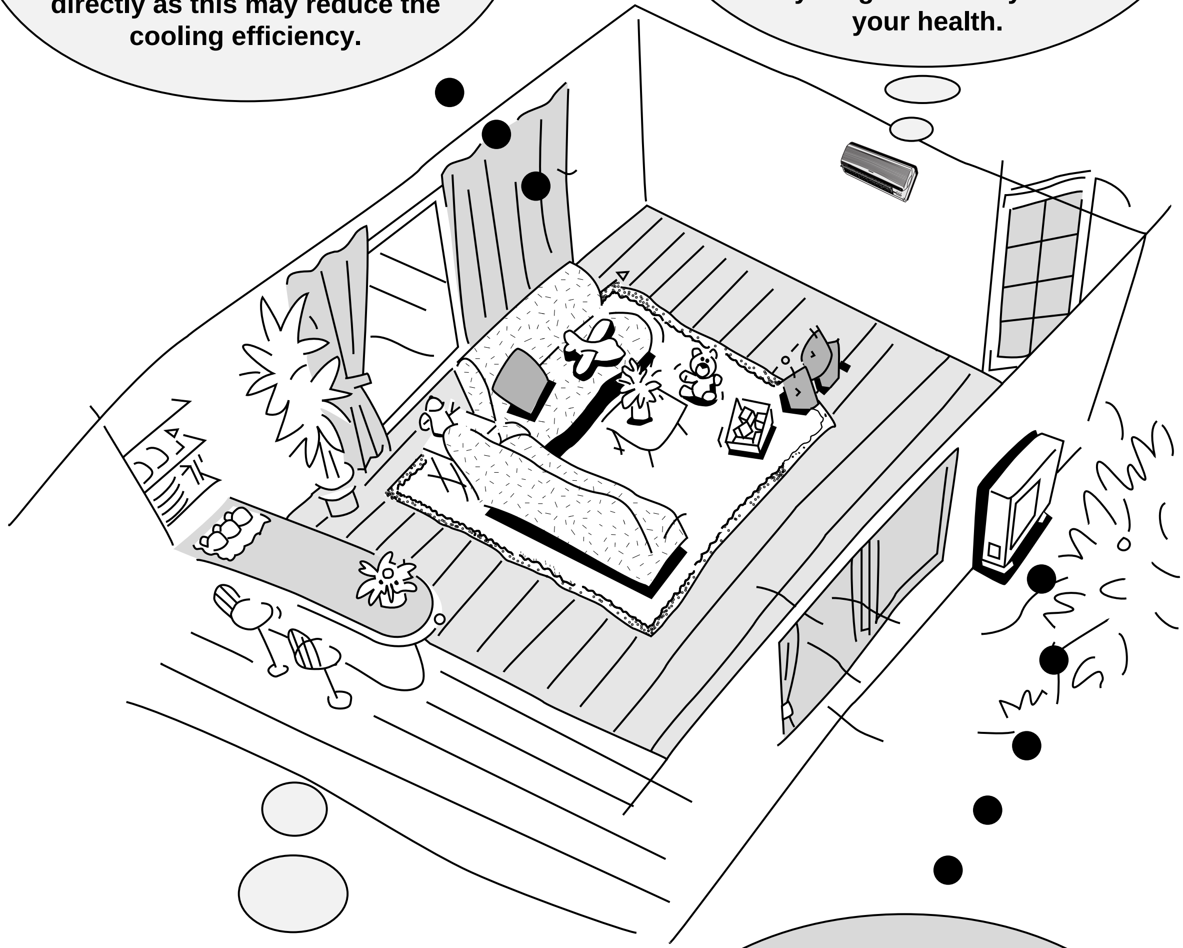
- Air blows out gently during sleep.
- When used in conjunction with the Timer, the Timer has priority.

## Adjust your curtains and blinds

Adjust curtains and blinds to prevent sunlight from entering the room directly as this may reduce the cooling efficiency.

## Do not overcool!

A difference of 6°C or less between the outdoor and indoor temperatures during cooling is ideal.
Anything cooler may harm your health.



## Clean the filters!

A dirty air filter reduces heating and cooling efficiency.
Clean the filters every 2 weeks.

## Anything near the outdoor unit?

Objects placed near the outdoor unit will reduce heating and cooling efficiency.

# Care and Maintenance

## Regular cleaning and servicing will prolong the life of your air conditioner.

### Caution

■ **Before cleaning the air conditioner, set the Power supply to OFF.**
The high fan speed may cause injury.

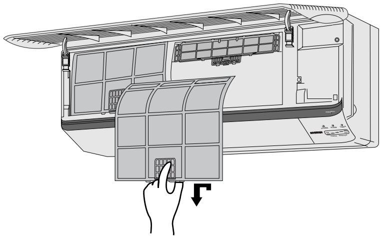
■ **Do not wash the unit with water.**
Water may cause a short circuit or electric shock.

### Cleaning the indoor unit and remote control

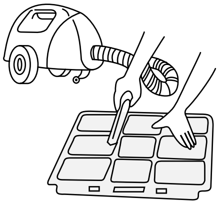
- Wipe gently with a soft, dry cloth.
- Do not clean with water hotter than 40°C, volatile liquids such as paint thinner, or polishing fluids. (When using chemically treated cloth, refer to the instructions and precautions.)
- The front panel can be removed and cleaned with water.

### Cleaning the air filters (Once every 2 weeks)

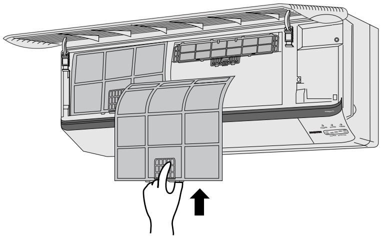
1 **Open the front panel and remove the two air filters.**
Hold the tab, lift up slightly, then pull down.



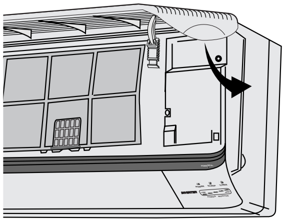
2 **Remove dirt using a vacuum cleaner.**
For heavy dirt, wash with water and dry well (away from direct sunlight) before replacing.



3 **Replace the air filter.**
Be sure the “FRONT” mark is facing you.



4 **Close the front panel.**



## Recommendation

If the unit is operated in a dusty environment, clean the filters every two weeks. Continued use with dirty filters reduces cooling and heating efficiency.

**Damaged air filter**
Consult the nearest authorized dealer.
Part No. CWD00240

## Cleaning the front panel (Must be removed before washing)

### Caution

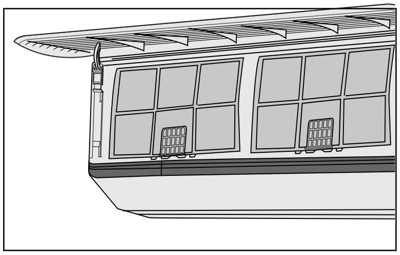
- **Stand on a flat surface when removing the front panel.**
- **Do not touch the indoor unit's metal portions after removing the front panel.**
- **Do not leave water on the panel after cleaning. Dry thoroughly to prevent electric shock.**

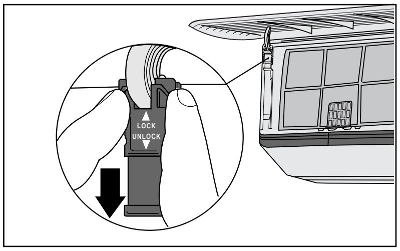
### Removing the front panel

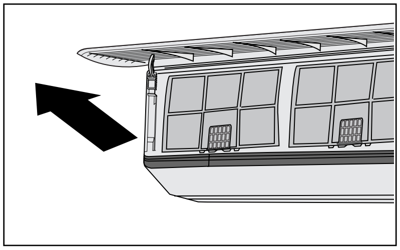
1 **Raise the front panel to its full extent.**

2 **Slide the two tabs (left and right) to the UNLOCK position.**

3 **Raise up the front panel to a position slightly higher than horizontal and pull to remove.**







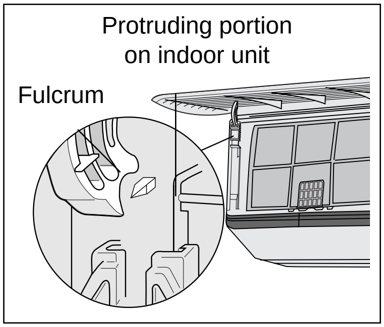
### Cleaning the front panel

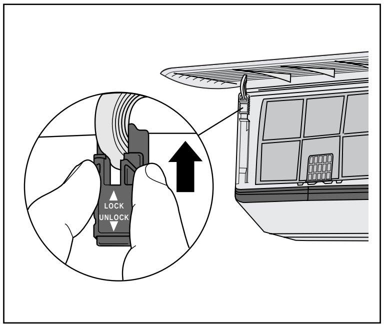
- Gently wash with water and a sponge. (Do not use a scrubbing brush or other hard cleaning aids.)
- Do not press the front panel too hard when washing. (Excess pressure may damage the panel.)
- When cleaning with kitchen cleaning fluids (neutral detergents), rinse thoroughly. (Do not use non-neutral detergents.)
- Do not dry the front panel in direct sunlight. (Exposure to direct sunlight may discolor or disfigure the panel.)

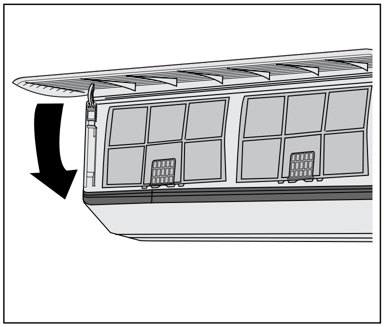
### Fixing the front panel

1 **Raise the front panel horizontally, match the protruding portion on the indoor unit to the fulcrum and push into place.**

2 **Slide the two tabs up to the LOCK position.**
**Note: If the tabs are left in the UNLOCK position, the front panel will not close.**





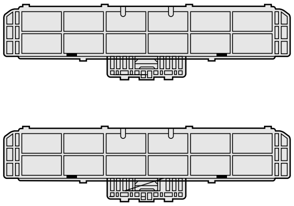


- If the panel does not close completely, check the tab positions and try again.

# Care and Maintenance

## Replacing the air purifying filters (Once every 3 months)

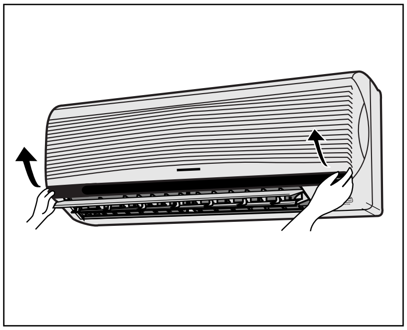
### ■ Replacing the air purifying filters



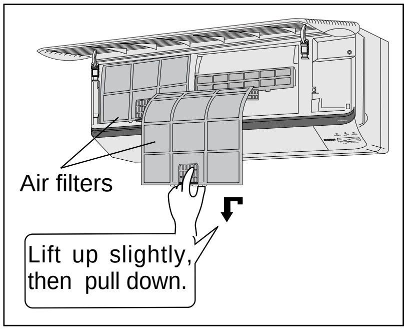
- Do not reuse dirty filters. Consult the nearest authorized dealer.
  Air purifying filter No. CZ-SFD50N.
- These filters function effectively for no longer than three months.
- If the air conditioner operates with dirty filters:
  - Air is not purified.
  - Cooling and heating capacity decrease.
  - Foul odours are emitted.
- Note:
  Catechin is natural brown element. The filter is coated with catechin in order to prevent the growth of bacteria and viruses.

### ■ Removing the air purifying filters

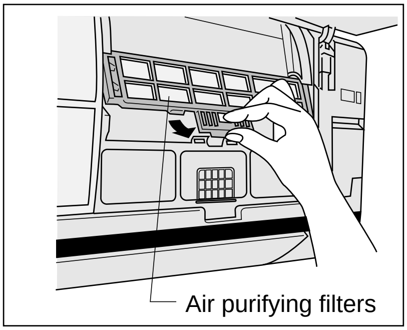
1 **Raise the front panel to its full extent.**



2 **Remove the two air filters.**

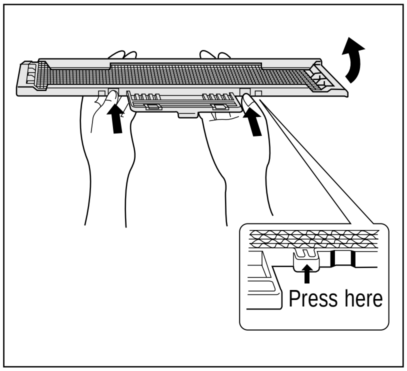

Air filters
Lift up slightly, then pull down.

3 **Hold the tabs of the air purifying filters and pull.**

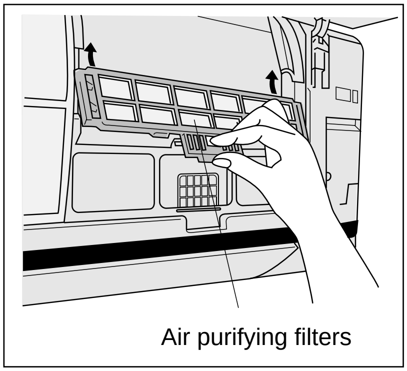


### ■ Re-installing the air purifying filters

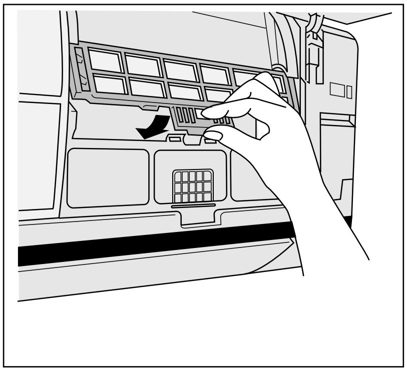
1 **Open the filter frame to insert the new filters.**
Note:
- Deodorizing Filter
  (Black in colour)
- Catechin Air Purifying Filter
  (Brown in colour)



2 **Insert the new air purifying filters. (Be sure the "FRONT" mark is facing you).**



3 **Push until you hear a click.**



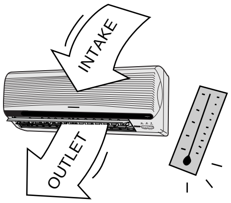
- Close the front panel after reinstalling the air filters.

## Caution

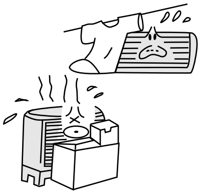
**■ Do not ignore a damaged installation rack.**
A damaged rack may fall and cause injury. Consult an authorized dealer.

## Pre-seasonspection

**■ Is the discharge air cold (warm)?**
Operation is normal if, 15 minutes after the start of operation, the temperature difference between the air intake and outlet vents is 8°C or above for cooling and 14°C or above for heating.



**■ Are the air intake or outlet vents obstructed?**



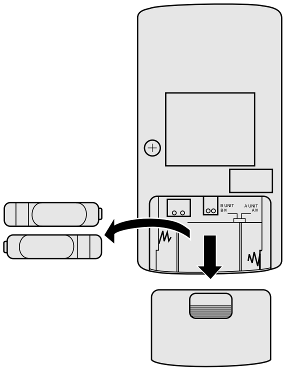
**■ Are the remote control batteries dead?**
If the remote control display flashes, replace the batteries. (page 9)

## When the air conditioner is not used for an extended period of time

**1** **To dry the internal parts of indoor unit, operate the unit for 2 ~ 3 hours using Fan operation.**

**2** **Turn off the Power Supply and remove the power supply plug.**
**Note : If the unit is not switched off by the remote control, it will operate when you plug in (because a Auto Restart Control is provided).**

**3** **Remove the remote control batteries.**

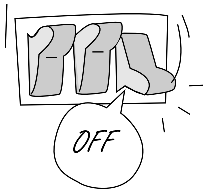
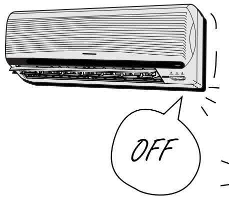
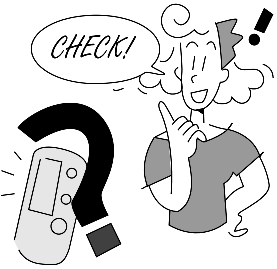
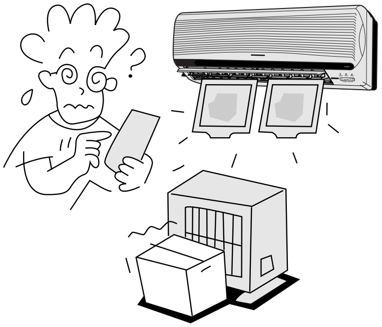
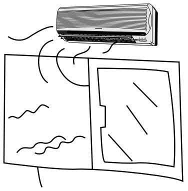
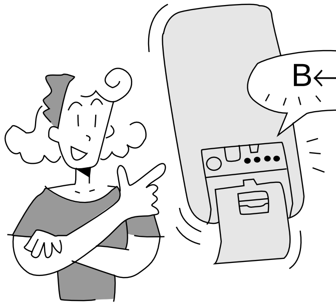
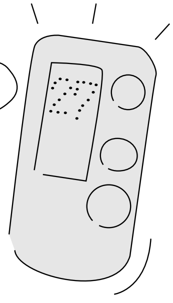
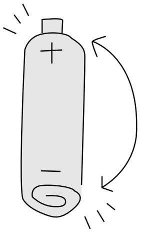


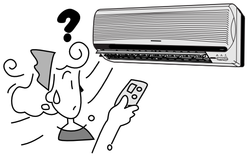
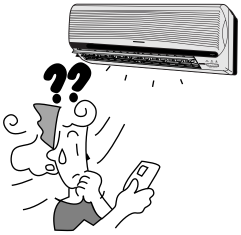
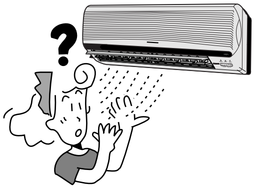
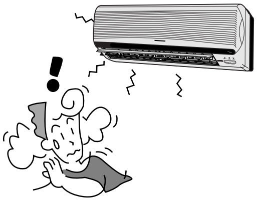
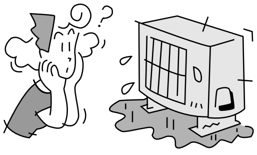
## Recommended inspection

- The unit will become dirty after use over several seasons, reducing performance.
- Depending on the operation condition, a dirty unit may produce foul odours and dust may pollute the dehumidifying drainage.

Seasonal inspections are recommended, in addition to regular cleaning. Consult an authorized dealer.

# Troubleshooting
## (Before calling your dealer, refer to the checklist)

| Problem? | Check |
|---|---|
| **The unit does not operate** | ■ Has a circuit breaker been tripped or a fuse blown?<br>■ Is the power supply plug disconnected from the outlet?<br>■ Is the Timer being used correctly (page 14)?<br> <br> <br> |
| **The unit does not cool or heat effectively** | ■ Has the temperature been set correctly (page 10)?<br>■ Are the air filters dirty (page 18)?<br>■ Are the air intake or outlet vents blocked?<br>■ Are all the windows and doors closed?<br>※ Measure the temperature difference. Operation is normal if, 15 minutes after the start of operation, the temperature difference between the air intake and outlet vents is 8°C or above for cooling and 14°C or above for heating.<br><br> |
| **The unit does not receive remote control signals, or the remote control display is weak or non-existent** | ■ Is the signal switch set to "B" (page 7)?<br>■ Are the batteries weak (page 9)?<br>■ Have the batteries been inserted with the ⊕ and ⊖ poles in the correct position?<br> <br><br> |

| Problem? | Reason |
|---|---|
| **Air is not discharged immediately** ▶ | ● **At Cooling • Soft Dry (auto Fan Speed)**<br>Air will not be discharged for approximately 40 seconds. The unit is designed to prevent tobacco, cooking and body odors from being discharged together with the cool air.<br>● **At Heating (POWER LED blinks)**<br>This is to prevent cold air from blowing out. Please wait.<br> |
| **Operation stops suddenly** ▶ | ● **At Cooling • Soft Dry (auto Fan Speed)**<br>The indoor fan repeatedly stops for 60 seconds and operates for 30 seconds to check the indoor temperature. Whenever the temperature reaches the setting temperature, operation starts again.<br>● **At Heating (POWER LED blinks)**<br>When the outdoor temperature is low and humidity is high, frost accumulates on the outdoor unit. The POWER LED blinks when the unit is melting the frost. (Please wait as defrosting may take up to 10 minutes.)<br> |
| **Fog is blowing out from the unit** ▶ | ● This occurs when the airflow from the air conditioner cools the room.<br> |
| **There is a noise** ▶ | ● A ‘passt’ sound is heard during defrosting or when the air conditioner operation has been stopped. This is caused by the refrigerant inside the air conditioner flowing in the opposite direction.<br>● The air conditioner will expand or contract due to changes in temperature, causing a cracking sound.<br>● The sound of water flowing is caused by the refrigerant flowing inside the unit.<br> |
| **The outdoor unit gives off water and steam** ▶ | ● When defrosting, the frost melts and changes to water and steam.<br> |

# Is There a Problem?

## Call the dealer immediately if any of the following occurs.

**Abnormal noise during operation.**

**Switches or buttons not functioning.**

**Water leaking from the indoor unit.**

**Water or foreign particles in the remote control.**

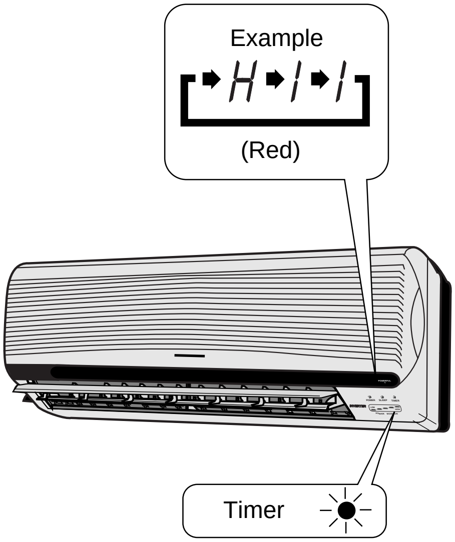
**A smell of burning is emitted.**

**Circuit breaker trips or fuse blows frequently.**

**Power supply cord and plug become unusually warm.**

**Turn off the Power Supply and remove the power supply plug.**

## ■ The Timer LED blinks and 3 characters are displayed.



- **Blinking indicates an abnormality. Check the display and consult an authorized dealer.**
- **After checking the display, turn off the power supply and remove the power supply plug.**
- **Depending on which 3 characters are displayed, temporary operation may be possible.**

| Characters allowing temporary operation | Possible temporary operations | Description of operation |
|---|---|---|
| H→2→3 | Cooling | Emergency operation with limited functions. (The Timer LED continues to blink.) |
| H→2→7<br>H→2→8 | Heating<br>Cooling | |

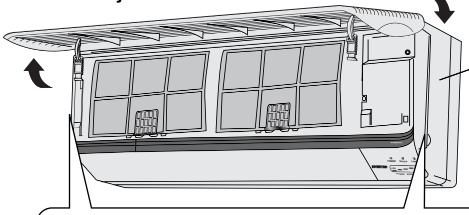
### ● Temporary operation

1. Press the (**MODE**) button and select Heating or Cooling.
2. Press the operation OFF/ON button ('beep! beep! beep! beep!' sound is heard).
   ※ Use this operation temporarily, until repairs can be made.

# Helpful Information

## Remote control fails to function

If the remote control fails to function or has been misplaced, carry out auto operation. Auto operation settings are automatic; the temperature cannot be adjusted.



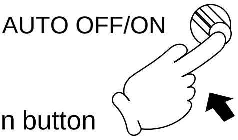
Hold the two panel openers of the front panel and pull. (Replace after operation starts.)

### 1 Turn the Power Supply to ON

### 2 Press the Auto Operation button

The POWER LED blinks until the operation mode is selected.

**■ To cancel Auto Operation**



Press the Auto Operation button again (POWER LED lights off).

## When there is a power failure

**■ Power failure during operation**

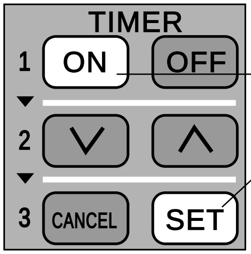
**Auto Restart Control**

- ■ If there is a power failure, operation will be automatically restarted under the previous operation mode and airflow direction when the power is resumed as the operation is not stopped by remote control.
- ■ When the operation restarts, the outdoor unit will operate only after 3~4 minutes.

**● Power failure after the Timer has been set**

The Timer setting is cancelled. (Main unit's Timer LED is extinguished.) Once power is restored, reset the Timer.

(Ex) Power failure after the ON-Timer has been set.



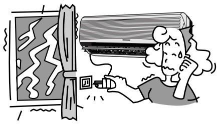
**1** **Press (ON) Button**

**2** **Press (SET) Button**

(Indoor unit's Timer LED lights up.)

## Thunder and lightning

This air conditioner is equipped with a built-in surge protective device. However, in order to further protect your air conditioner from being damaged by abnormally strong lightning activity, you may switch off the main power supply and unplug from power socket.



## Voltage fluctuation

The outdoor unit stops operation frequently due to a fluctuation in the voltage. Consult your dealer.

## ⚠ Warning

1) This appliance must be earthed.
2) If the supply cord is damaged or need to be replaced, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
3) Remove power plug or disconnect from the mains before servicing this appliance.
4) Do not repair by yourself.
   In case of malfunction of this appliance, do not repair by yourself.
   Contact to the sales dealer or service dealer for a repair.
5) Do not use in an explosive atmosphere.
   Do not use this appliance in a potentially explosive atmosphere.
6) Turn off the power (Isolation from main power supply).
   Pull off the power plug from the receptacle, or switch off the breaker, or switch off the power disconnecting mean to isolate the equipment from the main power supply in case of an emergency.

## ⚠ Caution

DISCONNECT THE MAINS PLUG FROM THE SUPPLY SOCKET WHEN NOT IN USE, WHERE SUPPLY CONNECTION IS VIA MAINS PLUG.

Airborne noise.
A-weighted sound pressure level of this appliance is less than 70dB (A) under the JIS C 9612 test conditions.
Maximum cooling operation
1 m from the unit

## IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Green and Yellow : Earth
Blue : Neutral
Brown : Live

“As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

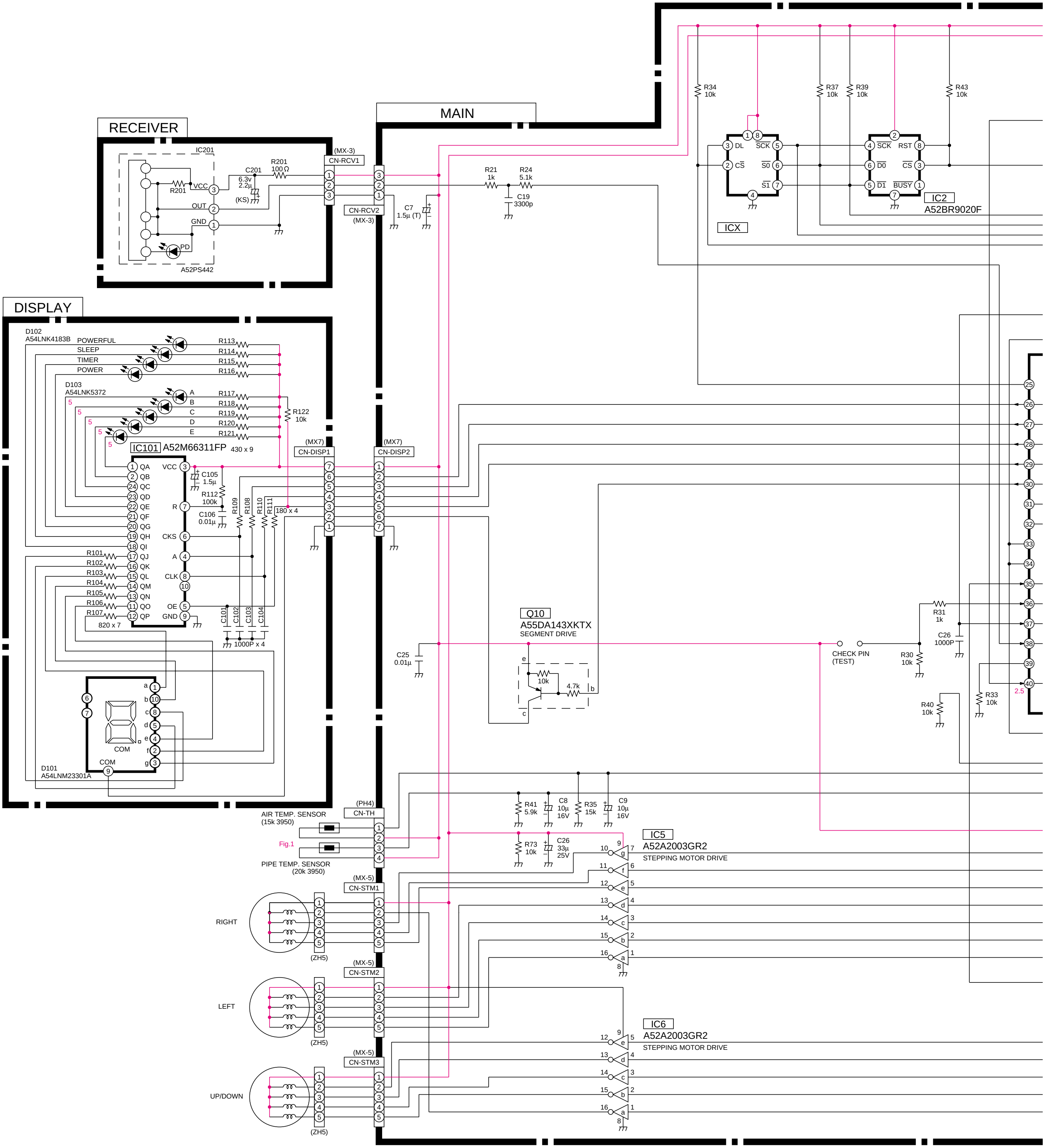
The wire which is coloured green and yellow must be connected to the terminal in the plug which is marked by the letter E or by safety earth symbol ⏚ or coloured green or green and yellow.

The wire which is coloured blue must be connected to the terminal which is marked with letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with letter L or coloured red.”

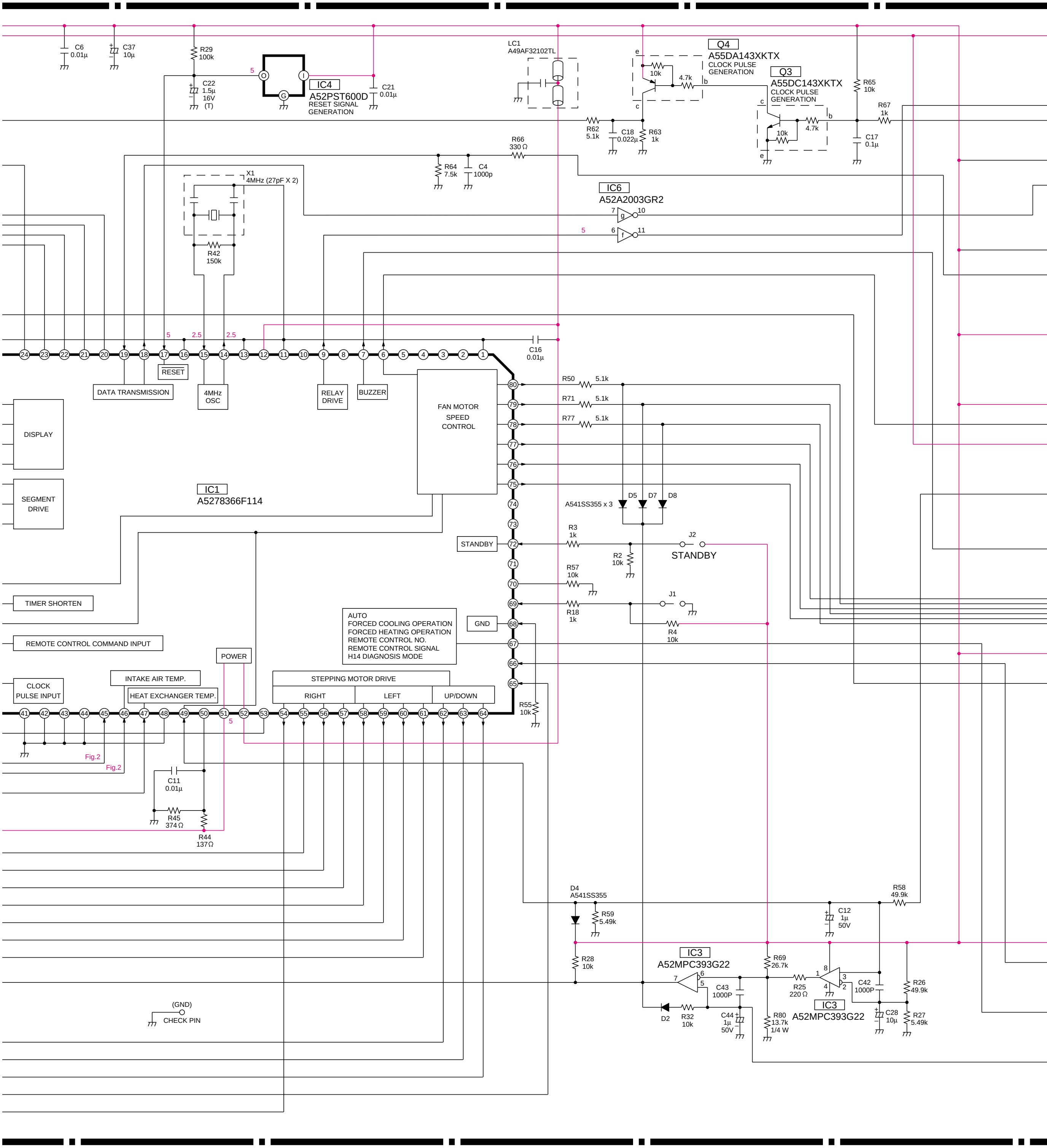
- **CS-G95KE**
- **CS-G125KE**

## SCHEMATIC DIAGRAM 1/3

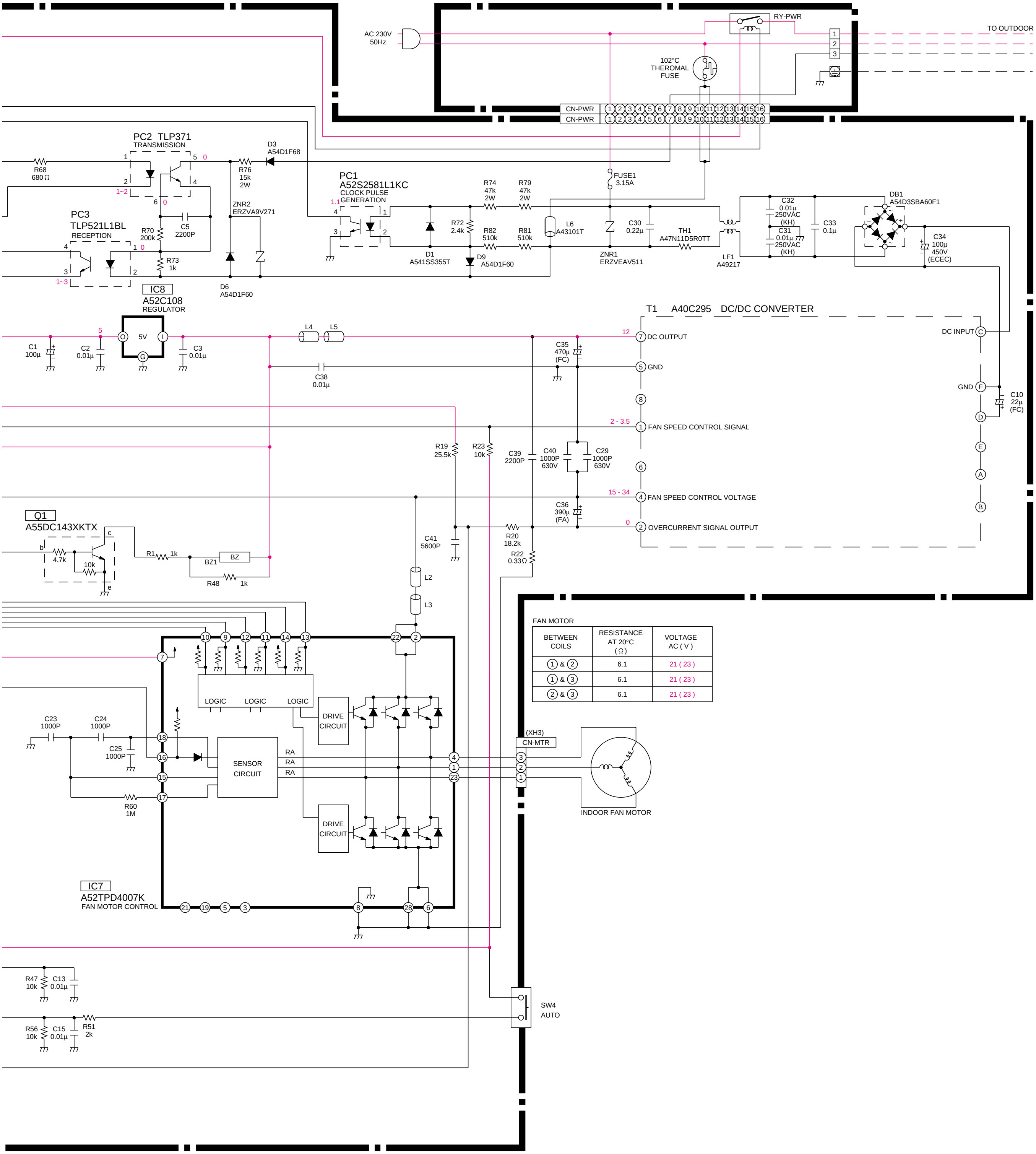


RECEIVER
IC201
A52PS442
C201 6.3v 2.2µ
R201 100 Ω
R201
VCC
OUT
GND
PD
(KS)
(MX-3)
CN-RCV1
CN-RCV2
(MX-3)
MAIN
C7 1.5µ (T)
R21 1k
R24 5.1k
C19 3300p
R34 10k
R37 10k
R39 10k
R43 10k
DL
SCK
CS
S0
S1
ICX
SCK
RST
D0
CS
D1
BUSY
IC2
A52BR9020F
DISPLAY
D102
A54LNK4183B
POWERFUL
SLEEP
TIMER
POWER
R113
R114
R115
R116
D103
A54LNK5372
A
B
C
D
E
R117
R118
R119
R120
R121
R122 10k
IC101 A52M66311FP
430 x 9
VCC
C105 1.5µ
R112 100k
C106 0.01µ
R109
R108
R110
R111
180 x 4
QA
QB
QC
QD
QE
QF
QG
QH
QI
QJ
QK
QL
QM
QN
QO
QP
R
CKS
A
CLK
OE
GND
R101
R102
R103
R104
R105
R106
R107
820 x 7
C101
C102
C103
C104
1000P x 4
(MX7)
CN-DISP1
(MX7)
CN-DISP2
COM
COM
D101
A54LNM23301A
Q10
A55DA143XKTX
SEGMENT DRIVE
10k
4.7k
e
b
c
C25 0.01µ
CHECK PIN (TEST)
R31 1k
C26 1000P
R30 10k
R40 10k
R33 10k
2.5
(PH4)
CN-TH
AIR TEMP. SENSOR (15k 3950)
Fig.1
PIPE TEMP. SENSOR (20k 3950)
R41 5.9k
C8 10µ 16V
R35 15k
C9 10µ 16V
R73 10k
C26 33µ 25V
IC5
A52A2003GR2
STEPPING MOTOR DRIVE
(MX-5)
CN-STM1
RIGHT
(ZH5)
(MX-5)
CN-STM2
LEFT
(ZH5)
(MX-5)
CN-STM3
UP/DOWN
(ZH5)
IC6
A52A2003GR2
STEPPING MOTOR DRIVE

# SCHEMATIC DIAGRAM 2/3


C6
0.01µ
C37
10µ
R29
100k
C22
1.5µ
16V
(T)
IC4
A52PST600D
RESET SIGNAL
GENERATION
C21
0.01µ
LC1
A49AF32102TL
Q4
A55DA143XKTX
CLOCK PULSE
GENERATION
Q3
A55DC143XKTX
CLOCK PULSE
GENERATION
R65
10k
R67
1k
C17
0.1µ
R62
5.1k
C18
0.022µ
R63
1k
R66
330 Ω
R64
7.5k
C4
1000p
X1
4MHz (27pF X 2)
R42
150k
IC6
A52A2003GR2
C16
0.01µ
RESET
DATA TRANSMISSION
4MHz
OSC
RELAY
DRIVE
BUZZER
FAN MOTOR
SPEED
CONTROL
R50 5.1k
R71 5.1k
R77 5.1k
DISPLAY
SEGMENT
DRIVE
IC1
A5278366F114
A541SS355 x 3
D5
D7
D8
STANDBY
R3
1k
R2
10k
J2
STANDBY
R57
10k
R18
1k
J1
R4
10k
TIMER SHORTEN
REMOTE CONTROL COMMAND INPUT
AUTO
FORCED COOLING OPERATION
FORCED HEATING OPERATION
REMOTE CONTROL NO.
REMOTE CONTROL SIGNAL
H14 DIAGNOSIS MODE
GND
POWER
CLOCK
PULSE INPUT
INTAKE AIR TEMP.
HEAT EXCHANGER TEMP.
STEPPING MOTOR DRIVE
RIGHT
LEFT
UP/DOWN
R55
10k
Fig.2
Fig.2
C11
0.01µ
R45
374 Ω
R44
137 Ω
D4
A541SS355
R59
5.49k
R58
49.9k
C12
1µ
50V
R28
10k
IC3
A52MPC393G22
C43
1000P
C44
1µ
50V
D2
R32
10k
R69
26.7k
R80
13.7k
1/4 W
R25
220 Ω
IC3
A52MPC393G22
C42
1000P
C28
10µ
R26
49.9k
R27
5.49k
(GND)
CHECK PIN

# SCHEMATIC DIAGRAM 3/3


AC 230V
50Hz
RY-PWR
TO OUTDOOR
1
2
3
102°C
THEROMAL
FUSE
CN-PWR
CN-PWR
PC2 TLP371
TRANSMISSION
R68
680Ω
1~2
D3
A54D1F68
R76
15k
2W
ZNR2
ERZVA9V271
PC3
TLP521L1BL
RECEPTION
R70
200k
C5
2200P
R73
1k
1~3
D6
A54D1F60
PC1
A52S2581L1KC
CLOCK PULSE
GENERATION
1.1
R74
47k
2W
R79
47k
2W
R72
2.4k
R82
510k
R81
510k
D1
A541SS355T
D9
A54D1F60
FUSE1
3.15A
L6
A43101T
C30
0.22µ
ZNR1
ERZVEAV511
TH1
A47N11D5R0TT
LF1
A49217
C32
0.01µ
250VAC
(KH)
C31
0.01µ
250VAC
(KH)
C33
0.1µ
DB1
A54D3SBA60F1
C34
100µ
450V
(ECEC)
IC8
A52C108
REGULATOR
5V
C1
100µ
C2
0.01µ
C3
0.01µ
L4
L5
C38
0.01µ
C35
470µ
(FC)
T1 A40C295 DC/DC CONVERTER
DC OUTPUT
GND
FAN SPEED CONTROL SIGNAL
FAN SPEED CONTROL VOLTAGE
OVERCURRENT SIGNAL OUTPUT
DC INPUT
GND
C10
22µ
(FC)
12
2 - 3.5
15 - 34
0
R19
25.5k
R23
10k
C39
2200P
C40
1000P
630V
C29
1000P
630V
C36
390µ
(FA)
R20
18.2k
R22
0.33Ω
C41
5600P
L2
L3
Q1
A55DC143XKTX
4.7k
10k
R1
1k
BZ1
BZ
R48
1k
LOGIC
LOGIC
LOGIC
DRIVE
CIRCUIT
DRIVE
CIRCUIT
SENSOR
CIRCUIT
RA
RA
RA
C23
1000P
C24
1000P
C25
1000P
R60
1M
IC7
A52TPD4007K
FAN MOTOR CONTROL
(XH3)
CN-MTR
INDOOR FAN MOTOR
R47
10k
C13
0.01µ
R56
10k
C15
0.01µ
R51
2k
SW4
AUTO

FAN MOTOR

| BETWEEN COILS | RESISTANCE AT 20°C (Ω) | VOLTAGE AC ( V ) |
|---|---|---|
| ① & ② | 6.1 | 21 ( 23 ) |
| ① & ③ | 6.1 | 21 ( 23 ) |
| ② & ③ | 6.1 | 21 ( 23 ) |